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Handmade glazed tiles, based on striking Arts and Crafts designs by Henry Chapman Powell, are used in floors or backslashes, decorative floor or walls. For more, see page 118.

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## Homeowner's Handbook: Fireplace Face-lift

Intelligence is now heavily and unevenly distributed. BY JEFFREY M. ROUSE

## Yard Work

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## Farmhouse Fix-up

A young couple revealed their first home a weekend at a time. By Robert Glavin

## Building a Retaining Wall

Some C&D shows how great concrete blocks make it faster and easier. By Mark A. Anderson

## Cotswolds in Kentucky

*A manuscript survives in French with an English country setting. By Leo Marx*

## Tiles of Imagination

*Handmade from the original patterns, these Art and Craft designs will amaze.* By MICHAEL LUTENAUER



DOI: 10.1002/for



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COSTUME DESIGNER: JIMMY HARTWICK. © 1994

## cover

This beautiful fireplace from the 1830s is crafted with handmade tiles from the Moroccan Pottery and Tile Works in Doylestown, Pennsylvania. For more on these tiles—still made today—see page 118. For beauty as well as adding your own fireplace with a stone surround and hearth, see *Remodeler's Handbook*, starting on page 71. **REPRODUCE BY JACOB BLANCK**

[illegible]

**I**ntelligence marries beauty.

gy affluence:  $\rightarrow$  income  $\rightarrow$  low-cost consumer  $\rightarrow$  speed cooking  $\rightarrow$  size  $\rightarrow$   $\rightarrow$  ten-chest feed wash arms  $\rightarrow$  balance light

[illegible]

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### Profile

While having good change is still

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*"I use random-orbits more than any other sander."*

—NORM ARHAM, TWO-OLD HOUSE MASTER CARPENTER



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Time Out House building editor Bruce Alexander "Alex" Goss died at her home in New York City on September 18, from complications of diabetes. In his three years with the magazine, Alex managed elaborate home projects, scored locations, directed photo shoots, and was hector to the editors' design and construction editors too. Most recently, he coordinated the building of the Timeline House in Africa.

Around 7:01, Alex was known for her sharp wit, impeccable sense of humor, and more of all her infectious laugh. "I'd hear her laughing in her office, those deep down from me, and I would just crack up," recalls a coworker.

At staff meetings, Lunatac tracks shows, and broader presentations, Allen was never without a sketch pad. Her quick renderings would capture the faces of a lioness or the turn of a ribbon like she sketched. "It was something fabulous, Allen caught it in her sketchbook," says close friend and former colleague Celia Cocone.

Alex's mix of Southern primity and disarming boldness won her lasting relationships with designers, builders, architects, and as others likewise devoted to Marshall Watson. Her taste for her admirers, was expressed by her "treasure" style and outrageous sense of humor. He was also inspired by her attention to detail, housing-a-one perfect Tiffany blue for the marble in her apartment, she brought a glow like in the past, and improved the way

Raised in Burlington, N.C., Allen moved to New York in 1968 to work at 2,021 House Ideas, an interior design monthly. In 1992 she joined *American Homestyle* magazine, where she managed nearly a dozen building and remodeling projects. She joined the staff at *The Old House* in 2000.

The holidays were Alex's favorite time of year. She would throw a big party and make her signature herb butters and deviled eggs, cooking over the wonderful aroma of fresh pine needles. This season her friends, family, and all of us here at The Old House will miss our most precious hostess.

Alta is survived by her parents, Kenneth Carr and Berle Kendrick Carr of Redwood, and brother, Kenneth Carr, of Chapel Hill, N.C.

## HOW TO REACH US

**RESEARCH DESIGN**

- *Wrote to advise the publisher magazine.*
- *Wrote about the American Film House New York NY 10018.*
- *Did not include Gary Lee in the list sent.*
- *Sent a note to Film International Inc.*

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#### Education Trillings

The bellwork ceiling (above) uncovered at Lewis and Peter O. Diller's 1913 house in Sioux Falls, South Dakota ("Turned Treasures," September 2002, p. 120), is unusual today, but it was not when the house was built.

Popularized by Francophone American craftsmen such as architect Ogden Codman and interior decorator Ellis Ch. Wills, rooms of bellwork, or trillings, became an education—no doubt how after 1900, when America's first private women's club, the Gaiety Club, at 100 Madison Avenue, opened in New York City. The Wills was its decorator, and the club's place de residence was a sensational bellwork treasure, inspired by 18th-century French garden structures. It wasn't long before well-heeled tad-pornosee homeowners began asking their architects and decorators to follow suit. As a result, early-20th-century bellwork rooms—ballrooms, parlors, dressing rooms—abound. The trillings may have been a breakfast room, saloon, or dining room. They might want to dig a little deeper into the history of their house and the people who lived there, given the "treasure" they've already found.

MITCHELL QUINN, NEW YORK, N.Y.

#### Planting Ground Covers

I liked the article "Ground Covers" in the October 2002 issue. I hear that the fall is a good time to plant, but how late is okay?

JOHN CHURCH, CHICAGO, ILL.

TDH landscape contractor Roger Cook says, "Autumn is the perfect time to plant ground

covers. Given in Virginia, you should be able to plant well into November." But if you miss this season, spring is good too, you just have to be diligent about weeding and watering.

#### It's in the Cabinet

I wish I had read Jeffrey Potholite's article "Get It in Writing" (October 2002) before I started my home renovation. The points he makes would have saved me a great deal of time, money, and undue mental stress. I hope to see articles by him in the future. Thanks for the great magazine.

BARBARA FORD, NEW YORK, N.Y.

#### Gingerbread Struts

I enjoyed Amy Hughes's short article "Gingerbread Gingerbread" in the July/August 2002 issue. Our home was built in the 1930s in Martha's Vineyard, and we've had the gingerbread replicated to match the old man. Is there anyone that traces the history or origin of the pattern? I think our pattern is fairly unique, and I'd like to find out if there's a story behind its design.

ROBERT MORRIS, NEWPORT, R.I.

There's really no one-stop shopping when it comes to historical research of the kind. If you just want examples of patterns of the period, a search for "gingerbread patterns" on Amazon turns up a good half dozen up-to-date catalogs of the period. If you're interested in the bigger picture, two books by Victorian-era architect A.J. Downing, *The Architecture of Country Houses* and *Victorian Cottage Revivals*, are still in print. And classic modern references like *The Field Guide to American Architecture* (Vignette and Lee McArthur) and *The Elements of Style* (Stephen Galloway), both with extensive bibliographies, may lead you in the right direction. Good luck, and enjoy your drafting.

#### punch list

editors: a list of items discovered since the manuscript was submitted is requested.

• The October 2002 deadline should have included contact with parties for licensing, reprint, French Chateau, S.O.A., who designed the landscape featured in this month's article "Ground Covers." The office is located in Boston, Massachusetts, 417-427-7734.

\*ARTICLE BY JEFFREY POTHOLITE, "GET IT IN WRITING," NEW YORK, N.Y. (1997) is a member of the International Association of Professional Writers, Editors, and Authors (I.P.W.E.A.). Published articles in the magazine and on the website are accepted for review.



Here's to outdoing the neighbors.

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## A Gift of Time

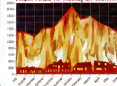
A few months ago, TGM landscape contractor Roger Cook joined the rest of the country in commemorating the first anniversary of the 9/11 terrorist attacks. And like many Americans, Roger volunteered his time that day—in this case, helping students at Manhattan's Bellows Day School plant a memorial garden. "For me, the day was all about the kids," says Roger, who climbed the scaffolding on the roof of the K through 7th graders as they planted their first red maple and slashbark hickory.

Roger's day at school represented a long-standing TGM tradition of giving to such programs as Habitat for Humanity (last Steve Thomas, Make-A-Wish Foundation (master carpenter Naven Wright), Alliant House for at-risk teens (general contractor Tom Sire), and local Eastman-area schools (planting and landscaping expert Richard Terhune). For all at heart, the owner is not in it for the money. As he puts it, "I do it quite simply because it's the right thing to do."

Roger Cook helps students from the Bellows Day School plant a 9/11 memorial garden designed by FugateNetwork Landscape Architecture Collaborative.



### AVERAGE NUMBER OF INJURIES FROM FIRES AT HOME, BY MONTH



### 'Tis the Season to Be Careful

If the past is any indication, close to 7,000 people will be injured in residential fires this winter. Thirty-seven percent of all house fires happen between November and February, and in December and January alone, home blazes claim an average of 1,000 lives. Not surprisingly, unsafe holiday decorations—overloaded electrical circuits, frayed and kinked wires, and unattended candles—are often the culprits. In just the three days from December 24 to 26, property loss from fires will top \$80 million.

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## ON THE JOB



## BEFORE & AFTER

**STARTER HOUSE GROWS UP** In 1996, newlyweds Anne Marie and Fred Johnson had all but given up their dream of finding a house in the close-knit community of Rye, Mass. Then they happened on this 1940s Cape. Set well back from the street on a sizable lot, the house had big potential for a young family. Over the next few years, they expanded an earlier addition and replaced the garage driveway with a three-season

sunporch. They also reconfigured the driveway into a horseshoe and created a large front lawn where their now 3-year-old son, Nicholas, can play. Overall, their improvements equaled about 100 square feet and allow their house to present a much more polished face to the street.

**HAVE YOU DRAMATICALLY ALTERED THE LOOK OF YOUR HOME?** If so, SEND PHOTOS AND AFTER DRAUGHTS, TELL A STORY about any of THE PROJECTS. To: The CMJ Remodelers, 1111 Avenue of the Americas, 27th Floor, New York, NY 10036.

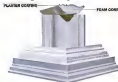
## MOVE OVER, GI JOE

There's new pack of action figures on the block—and they wield saws, hammers, and wrenches in place of guns, swords, and grenades.

Ground toward the S-and-up crowd, the Construction Jack line includes an electrician, a carpenter, a plumber, and a painter, each equipped with trade-specific tools and safety gear. They're the brainchildren of third-generation electrician Andy Winslow, who came up with the idea after a frustrating shopping trip to find a set that would give his nephew some idea of what he did for a living. "Winslow hopes that the toys will ease early education talk about the great American tradition of trade work but also provide a seamless role models."

More Jacks and a Construction Jill are due out in February. Available for \$29.99 from [www.constructionjacks.com](http://www.constructionjacks.com).

## A Lightweight Crown



**R**ecently Tom Gilv traded out a raw synthetic crown molding that says in place with joint compound instead of oak. The product is made from a core of polystyrene (the same stuff as Styrofoam) with a thin veneer of plaster. It's so light that Tom just battles the foam with compound, presses it into place, scrapes off the excess with a putty knife, and smooths the joints with a wet paintbrush. The plaster finish forms a crisp profile that takes paint well.

Like the polystyrene foam moldings he's used in the past, the

polystyrene cuts easily with a hand saw or power miter box. But Tom says this crown is more forgiving than the polystyrene foam because the joint compound will fill the gaps in an uneven cut well or on a noisy outside miter. "This stuff's great if you're installing crown in a room or room you'll be a little worried about getting right the first time," he adds. "With the compound you can fix your mistakes fast and fill gaping holes at the same time." Winslow is available in 30 profiles for \$3.00 to \$17 per foot from 800-854-8814 or [www.winslowinteriors.com](http://www.winslowinteriors.com).

My remodeling needed a finishing touch. Asked an expert in an orange apron for advice.

She showed me the light.



Recessed Iron Floor Lamp D01-907 (\$19.72) and Table Lamp D01-256 (\$29.72) Ralph Lauren Porcelain Hunting Coat Rack

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## ON THE JOB

### READING, WRITING...AND ROOFING?



Students study history by rebuilding a local landmark

Listening about your hometown's past conjures up images of a dusty local museum and ice-cream parlors from the fifties at the Historic Doorny chalets are you're not a product of the North Shore Central School District on Long Island, New York. For the past 13 years, the district's high school seniors have been required to take one of three interdisciplinary classes in a unique Long Island Studies program. Many of them choose the class that involves the humanities with construction work. After reading historically relevant literature, the students roll up their sleeves to help build something with historical significance to the area. Since 1995, the class project has been to rebuild the community's 17th-century one-room schoolhouse, which was demolished in 1907. Each year's class handled a different phase of the project, which culminated in the installation of the school's original bell in the new tower.

According to Bruce Polkman, who teaches the technology component of the course, the students' interest in their town and the project seldom wanes with graduation. "A lot of them come back to check on our progress. It's usually about five miles before they're asking to be put back to work," he says. Many of the 120 who have been involved have even donated their talent to a profit. Polkman credits local architect, contractor, and designers among his former students. Given that, the region should prepare to greet a few new business ventures. This year's class will be rebuilding the wooden deck and 100-year-old bell tower that furnished the original schoolhouse.

### A Lesson Learned the Hard Way

BY RICHARD TRUETT KIRBY



I was about 20 years ago, the hottest day of the year, and I'm sweating a can-size bucket in a fourth-floor walk-up in downtown Boston. It's a bear of a job, 400 pounds if it weighs an ounce, so it takes the better part of the morning for my buddy and me just to get it up the stairwell, taking every pause to rest so much as brush an elbow against the walls. The whole time, sweat is streaming down our faces. So we get to the bathroom and go to tie in the plumbing, only to discover that the toilet drain hole is on the wrong end. We have no choice but to take that heavy right back out the way we brought it in. Did I mention it was the hottest day of the year?

Let me tell you, that taught me one and for all that you always, always, always double-check your specs before you order your fixtures and start the work.

"Now...was that connection on the right?...or the left?"



### MEMORY KEEPER

A scrapbook modeled after a baby book, Our House Journal is a perfect gift for homeowners who feel as much affection for their houses as a parent feels for a newborn. The journal is organized into pages that let new owners chronologically record every step they take with their homes, from "the search" to "moving day" to "future plans," with spaces for photos, sketches, even fabric samples. Great as a housewarming present—or as a place to chronicle your own renovation projects. Available for \$19.95 from [www.chronicbooks.com](http://www.chronicbooks.com).



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## ON THE JOB



## TOOT TECHNOLOGY

## DRYWALL PATCH

**W**hen a hole in drywall is too large to fill with compound and too small to warrant screwing a large patch to the studs, Tom Silva chooses an elegant fix: a "doctor's patch" (so-called for its Band-Aid-like appearance). It's best used on holes smaller than your fist. After squaring off the hole, Tom measures it, adds



scrapes the drywall along the score lines, and peels the gypsum off the paper outside the trace. The patch that's left has a central square of drywall bordered by a 1½-inch-wide band of paper, which acts as a repair base.

Tom buttons the back of the paper permanent with joint compound, pushes the patch into the hole, and scrapes away excess mud with a taping knife. When that dries, he skims over the whole patch with more joint compound, waits for it to dry, then sands it smooth.

## House Account

**M**ortgage lenders are offering a new kind of charge card that gives you access to a line of credit based on the equity you have in your home, which is essentially a per centage of your house's appraised value minus the balance of your mortgage. The cards, offered in most states from various lenders, allow you to finance major expenses at significantly lower rates than those of ordinary cards—currently less than 1 percent compared with the 14 percent average for regular credit cards—because they're based on mortgage rates. And because they're mortgage products, interest payments up to \$100,000 may be tax deductible.

But some new benefits. Unlike ordinary credit cards, these are actually cash-on-margin mortgages and have a limited life span (usually 10 years). They should be reserved for significant purchases, such as home-improvement costs or college tuition. Don't take a steady drag on them for small, everyday shopping, just as with a mortgage, the penalty for taking too much interest every month on time can be steep. Worst-case scenario, you could lose your house. Available from many lenders including Bank of America, your bank, Citibank, Chase, Wells Fargo, and others. For more information, visit [www.bankofamerica.com/obacard](http://www.bankofamerica.com/obacard), [www.wellsfargo.com/obacard](http://www.wellsfargo.com/obacard), and [tellingthem Mutual Bank/obacard.htm](http://tellingthem Mutual Bank/obacard.htm).

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There is no cure for Alzheimer's. But a prescription drug called ARICEPT<sup>®</sup> has been used by millions of people to help their symptoms.

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<sup>12</sup> For a detailed response to Aulisio's (1998) view that the variables used are too narrow, since they take it as "given" that the

ARICEPT® is a well-tolerated drug but may not be for everyone. Some patients experience nausea, diarrhea, not sleeping well, vomiting, muscle aching, feeling very tired, or not wanting to eat. In studies, these side effects were usually mild and went away over time. Some people taking ARICEPT® experience lightheadedness. People at risk for seizures should tell their doctor because their condition may get worse.

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## HOUSE CALLS WITH STEVE



**above** The old, dreary kitchen screamed Victorian down to the copper-trimmed ovens, which The only remaining features in the ancient kitchen are the standard steel-professional appliances. To maximize the room's history of feel, a panel along the stove—designed to match the cabinets—conceals the ventilation hood. To the right of the stove, an upper cabinet holds the microwave with double doors that slide back out of the way.

having to reproduce more period elements than you'd expect."

From start to finish, the renovation took five years, \$60,000, and involving professionals to bring the kitchen back to its roots.

### A BLUEPRINT FROM THE PAST

Early on, Theresa and Dean met—by chance—the son of the house's architect. After hearing their story, he gave them a treasure trove: 18 sheets of original site-to-finish drawings of the house and its details, including the kitchen's woodworking and built-in cabinets.

With these drawings as their guide, Theresa and Dean guided the kitchen. They kept within the room's existing 14-by-16-foot footprint, except for becoming a narrow strip of space from adjoining food and bar/entertainment to partially access the refrigerator. On the original drawing, there's no sign of a refrigerator, not even an outline. "Refrigerators were kept in the basement, where it's cold," says Dean. Otherwise, the new work areas follow the old floor plan: sink by the window and stove centered on the wall opposite.

### Floor Plan



The new kitchen keeps within the existing 14-by-16-foot footprint, except for a strip of space borrowed for the refrigerator from the adjoining pantries. A table-and-stool breakfast area provides additional prep space.



concealed. In addition to the demands of construction, a renovation requires seeking out or

For the new single cabinetry, local cabinetmakers drew inspiration from a 9-foot-wide built-in china cabinet in the dining room. The result was intricate details such as exposed hinges, crown molding, beadboard back panels, and transomed door panels. The doors and drawer fronts were spray-painted and then varnished while the paint was still wet to create an aged look. Handmade was a special mission for Theresa, who tracked down antique glass pulls to echo the outgrown doorhandles throughout the house and repurposed nickel-plated drawer pulls donated to her in a walk to charity.

In 1916, the kitchen surely would have featured a white enameled cast-iron sink on a farmhouse legs. Though it's not true to the period, Theresa and Dean were set on salvaging a double-bowl brass with built-in drain boards from the 1940s. Besides having great character, it holds sentimental value: "It came out of Dean's parents' house in South Carolina," says Theresa. Painted granite countertops accommodate the sink's 15-inch depth.

### REINVENTING THE DETAILS

After a two-year quest, Theresa and Dean finally located a restoration plastics who could match the original polychrome wall tiles found elsewhere in the house. The couple spent months searching for rectangular "subway tile" (inspiring arguments over how a mosaic in the master bathroom) to go on the sink and stove backslashes. "When you're concentrated on a single room for as long as we have, you become obsessed with the details," says Theresa.

But it's the level of focus that produced a kitchen that's classic and modern, says Steve: "No one walking into their home would figure that this was a new kitchen."

For more kitchen design and inspiration, go to [www.thisoldhouse.com](http://www.thisoldhouse.com) (keyword: design anywhere). This Old House® and stick an elbow.

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## HOUSE CALLS WITH STEVE

### RETRO SINKS



Made of durable granite and resin, this 54-in.-wide farmhouse sink has a drain board that can be folded out on either side. By Blanco \$399

This cast iron basin can be dropped into a countertop or set on matching legs for an old-fashioned farmhouse look. By Rustic \$1,052

This drop-in stainless-steel sink with single backspash raises three of five 14-in. By American Standard \$605

Providing plenty of workspace, this 54-in.-wide double-bowl stainless-steel sink with integral drain board measures 33 inches by 19 in. By Kohler \$275

If you're thinking of replacing the sink in your kitchen with one that has vintage appeal, there are two ways to go, says Steve Thomas. "You can buy an old one from a salvage shop or choose a brand-new one that just looks old." To find an old sink, search the Yellow Pages for a local salvage yard, where you can browse up-and-running hardware stores range from \$125 to \$1,200. "Keep in mind," says Steve, "that even if you find a sink that's in good shape, you may not be able to locate an old drain and faucet that will work with an aged hole sawing." If you're lucky enough to find a salvaged sink with

the old brasses intact, you may still need special adapters to hook it up. "To avoid costly mistakes, consult with your plumber before buying, so you'll be sure to get a model that works," Steve advises.

To provide a general look without the plumbing hassles, many sources offer new sinks that replicate a variety of styles, from apron-front farmhouse sinks to 1940s and '50s drop-in versions with built-in drain boards (see the next page, above). Prices run as high as \$400. "While a salvaged sink certainly can add an old-fashioned touch to a kitchen, a reproduction is the easy way to go," observes Steve. ■

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# Ask THIS OLD HOUSE



**RICHARD TRETHEWEY**  
Plumber & Service Writer



**TOM SILVA**  
Carpenter



**TOM ADAMS**  
Shingles Contractor



**TERRY THOMAS**  
Hill



**BOON COOK**  
Landscape Contractor

## WARM FLOORS, SLOWLY

I love warm floors on a cold morning, so when we remodeled our kitchen we had an electric radiant heating grid installed under the new tile. It's great when it heats up, but takes almost 30 minutes. What's wrong?

HILLY KUTENMAN, WESTBORO, COVE

**Richard Trethewey replies:** Your floor is fine, but your expectations may need a little fine-tuning. Radiant floors of any type, whether electric or hydraulic, aren't like forced-air heating systems—turning up the thermostat doesn't produce instant heat. Before a floor can radiate heat, its water has to heat up, and that takes time, particularly when the surface is covered with tile.

Some people put their floor's thermostat on a timer so the surface will be warm before they get up in the morning. The problem is that whenever the timer turns the thermostat off, the floor unloads its heat energy, which then takes a while to rebuild. My recommendation: Set the thermostat to 60° or 62° and don't mess with it until spring. You won't walk over a cold floor in the middle of the night anyway.

## WINDOWS ON THE ROOF

What is the difference between skylights, sky windows, and roof windows?

ETHEL MONTGOMERY, ANDALUS, CALIF.

**Tom Silva replies:** Not a whole lot. Any glazed assembly that admits natural light through a roof can be called a skylight. Some manufacturers use the term "roof window" to describe a relatively large skylight placed low enough that you can see out to the landscape. So I guess if you can see only sky, it's a skylight, but if you can see city and land, you call it a roof window. Also, roof windows are generally big enough for quality as much as they're a case of a fine, thin, rather if you think about it with a skylight.

The term "sky window" is just as common as the others. At best, one manufacturer used it to describe huge glazed windows in a flat roof. Most skylights are meant for roofs with a slope of at least 15 degrees.

## REMODELING STRATAGEMS

My wife and I plan to restore our 18th-century-and-beans farmhouse to its former (humble) glory. The corner

ceiling is wood shiplap, covered with asbestos-remnant shingles, and the exterior walls are plaster covered with layers of 1970s-era paneling and wallpaper. We don't know quite where to start—inside or out?

DAVID WITMAN, FLEMINGTON, N.Y.

**Martin Auerbach replies:** A project of this size needs a master plan, and that calls for a comprehensive survey of the house to determine what problems you're facing, particularly anything related to structure, wiring, heating and cooling, and plumbing. You might want to get a contractor to help you with this, even if you plan to do the actual remodeling yourself.

Once you know exactly what has to be done, tackle the structural and mechanical problems first, and the cosmetic stuff second. For example, you ought to address a settled foundation before trying to fix stuck windows.

A good rule of thumb is to start on the outside, at the top, and work your way in. Start in the attic, then move down, buttoning up windows and outside walls before heading inside. Too many homeowners tackle the interior stuff first, then discover too late the task that caused their misery.



**WHAT'S IN A NAME?** Call it a skylight, a sky window, or a roof window, a glazed opening in the roof lets natural light enter areas that would otherwise be dark and shaded.

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## Ask THIS OLD HOUSE

gleamed ceilings to crash onto the recently refinished floors. With a sound weatherproof exterior, interior work won't go to waste.

### ROOF WITH RIDGES

The roof on my five-year-old cottage is plagued with little ridges. The house is a timber-frame structure covered with 5-inch-thick structural panels filled with urethane insulation. It was built in wet-weather conditions and the timber was green when assembled. Do you think that caused the problem?

Scott Bakkenow, Portsmouth, N.H.

**Tom Silva replies:** What's happening is that moisture vapor inside the house is getting between the ends of the roof panels because they weren't sealed properly with foam. When the vapor hits the roofing felt, the felt expands, which in turn pushes up the shingles. Problem is, the felt doesn't flatten out even when it dries, so the ridges don't go away. If newer shingles may help to keep felt from pushing up—but then again, maybe they won't. And even if they do, the moisture may eventually cause the panels' OSB sheathing beneath the felt to rot. (For more information on the right way to build with structural insulated panels, see the story on page 50.)

The solution is to strip off the shingles and felt and spray foam into the joints through small holes drilled every 3 inches. And find a company with thermographic imaging equipment (your local utility can probably recommend one) and have them take pictures of your roof so you know the location of all the heat leaks. Moisture vapor follows the same paths. Then, after the gaps are filled, have them take pictures again to make sure nothing was missed.

One more thing: Before you reroof, add some ventilation. Nail lengths of foil-shrapping fenderboard to your bare roof. Run them from peak to eaves with their centers spaced 18 inches apart, cover with 3-inch sheathing and builder's felt, then shingle. You'll have to add



**WHAT'S GOING ON?** Moisture-saturated builder's felt (see below) has caused the ridges on the roof, but the real problem lies beneath.

vent to your eaves and wire to cover the gap created by the shrapping, and you'll have to install vents at the eaves and peak. When you're done, this roof-on-a-roof will keep the underside of the shingle cooler and the top side of the peak dry.

I know this isn't the news you wanted to hear, but I'm afraid there isn't a cheap fix. If you haven't already, get in touch with the builder and the panel manufacturer. Perhaps the manufacturer has a warranty you can take advantage of. Or maybe the builder will want to minimize a good reputation (or avoid a lawsuit) and will cover or defray the cost of putting things right.

Just be sure you caught the problem early. I once saw a house where all of the panels had to be removed due to a leak of joint sealant; the shingling was just getting away.

### TOYS FOR YOUNG BUILDERS

With the holiday season approaching, I've been searching for the perfect gift for my 4-year-old nephew. I've been looking at a lot of building toys, and I've heard that Lincoln Logs were created by the son of Frank Lloyd Wright. Is that true?

JOYCE ROSSIGNOL, THORNTON, N.Y.

**Giovanna Thomas replies:** It sure is. Inspired by the misreading of a letter he saw in a letter asking to build the Imperial Hotel in Tokyo, John Lloyd Wright created the first set of miniature notched logs back in 1918, when he was just 24 years old. He came by his fascination relatively: the elder Wright is said to have played all his life with his childhood set



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## ASK THIS OLD HOUSE



**NOT A GOOD IDEA** Fixing the deck rail and pine against the house will quickly cause the wood siding and trim to rot.

**if people building decks.**

Building boys intrigued by kids of all ages—but how about a boy? When I was a kid, I remember the premium of playing a game of pine with my grandfather's well-worn yard game. My own son's favorite "toy" when he was 5 was a cardboard box (used with my supervision, of course). A boy drill wouldn't do—it had to be the real thing—and he loved driving dry-wall screws into a box. Twelve-child-houselove and love for a well-made tool and he'd discover why on the joy of making things with one's own hands.

### PATIO PROBLEM

Outside our new addition we added a stone patio on a concrete slab, bounded by a stone-retainer wall. The mason installed beds of stone directly against the addition's cedar siding. That doesn't seem right. What do you think?

PATTY KATHMAN, BARNETT, N.Y.

**Roger Cook replies:** You're correct. Stone and concrete should never be anywhere near your siding—much less touching it. Both materials trap and hold moisture—dry'll actually wick it out of the wall—and will eventually rot over the most durable wood. For that reason, I always keep any stone work at least 8 inches below the siding.

I don't have a simple solution to your problem, start of demolishing the work and starting over. As a matter of fact, this installation looks no worse. It makes me wonder if maybe there's something else going on that isn't evident from your photos. Ask your mason to explain what he did and why, but also invite

your local building inspector (or two, or well, as a real-estate mason representative by a stopgap. Find out what they think you should do.

### SHOOTING GOLF FROM GLASS

I've just moved into a new apartment with bathroom windows covered in contact paper. I scraped off the paper, but I can't remove the adhesive residue that remains. What will get this stuff off?

GUY HANCOCK, NEW YORK, N.Y.

**Steve Thomas replies:** First, try to remove as much adhesive as you possibly using a single-edge razor blade. I've used it on many windows. They're dividable in joint stress and have corners. Change blades frequently to keep the edge, well, razor sharp. The next step cleaning off the remaining residue, they're not meant to be! And even because we don't know what kind of adhesive was used.

According to the folks who make Goo-Off (and most will), adhesive removers these days are a water-based adhesive that's usually fairly easy to remove with household cleaners such as Formula 409. But older papers with solvent-based adhesives will be harder to get off, as will any water-based adhesives that have been regularly exposed to sunlight.

Luckily, there are several readily available products out there for removing labels, gum, masking tape, and the like from nonabsorbent surfaces. These carry trade names like Goo-Off, Goo Gone, Unibond, and Duct-Bond Adhesive Remover (see October's page 121). Most use solvent-based compounds and even I advise. One of them ought to be able to get rid of the particular residue. Just be sure to test them on different surfaces first so the paint and whatever putty you've damaged.

Generally, you just spray or sponge them on, wait a few minutes, and then scrape or scrub off the remaining residue. A second application should take care of any adhesive that doesn't come away entirely with the first wiping.

Adhesive removers are usually sold in hardware stores and home centers. We're also found at national-supply companies and even



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STILLMAN

## Getting Into Hot Water

A step-by-step guide to buying a water heater

By Colin Kaperonoid Lehtinen



The Old House plumbing and heating expert Richard Trechowyk advises homeowners to expect the details on any cook and energy efficiency when shopping for a water heater. (The Richard is on a pipe joint on a newly installed heater.)

**W**ater heaters are easy to upgrade—until they stop working. The average one lasts about 8 to 12 years and accounts for roughly 15 to 20 percent of your utility bill. So if your heater is getting along in years, or if you're adding or upgrading a bathroom, researcher the three cardinal rules of shopping for a standard storage water heater. Don't rush. See numbers. Energy efficiency matters most.

Admittedly, an ice-cold shower or a leaking heater neither of those agree to get a new heater hooked up quickly. But if you choose not based solely on speed of delivery, you may end up with a unit that can't keep up with demand, costs more to operate, and fails sooner than it should.

### GET YOUR ARMY SIZE

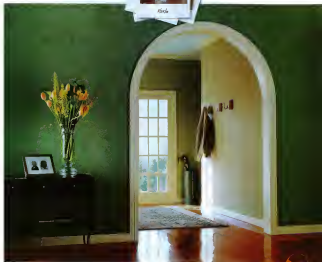
Even if you were happy with the old tank, don't automatically assume that it had the right heating capacity. To determine that capacity, you first need to add up about how much hot water your household uses during the hottest hour of an average day (see "Water Heaters Watchouts," p. 40). "See a water heater for your demand 24/3 days a year, not the one or two days that you've got 25 relatives visiting," says Richard Trechowyk, The Old House plumbing and heating expert. "Otherwise, you'll end up with an energy-gobbling bear in the basement."

That sum—your household's "peak-hour demand" for hot water—should be close to your water heater's "first-hour rating" (FHR) printed on each heater's yellow Energy Guide label. Basically, the FHR tells you how many

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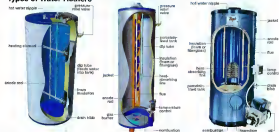
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## Types of Water Heaters

**ELECTRIC HEATER**

Electric water heaters are lightweight, quiet, and boast the highest efficiency of any storage water heater. But the price of electricity is so high in most places that relatively inefficient tank-fired models are hard to justify.

**GAS HEATER**

In tightly sealed homes, look for gas-fired water heaters with sealed combustion chambers and direct or power venting. These features ensure that all exhaust gases are pumped outside the house.

**OIL HEATER**

Oil-fired heaters heat water faster than either electric or gas units. They tend to be heavier than other heaters due to the thick lining in the combustion chamber that protects the tank from the burner's intense heat.

gallon of hot water a burner can produce during an hour of high output. (To see the same as the number of gallons a tank can hold.)

When comparing the different types of heaters, you'll see that gas and oil-fired units generally have higher FHRs, relative to their tank size, than do electric models. (Flames heat water more quickly than heating elements do.) If you come up with a high FHR on your work sheet, say 100 gallons or so, you may need to install a second water heater.

**ASSESS EFFICIENCY**

The next number to look at is the energy factor (EF), a number that represents the percentage of energy that is turned into hot water by that specific model. The higher the number, the more efficient the unit and the less it will cost to operate. (An EF of 1 would indicate that 100 percent of the energy a heater uses is converted into hot water—a physical impossibility, also.)

**WATER HEATER WORKSHEET**

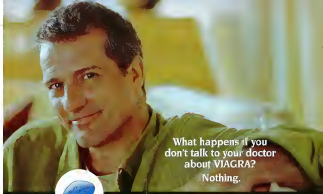
Use the under-consumption numbers in the chart to estimate how many gallons of hot water your household uses during the busiest hour of an average day. Then add up the column of "gallons used in one hour" to determine your "peak-hour demand." A water heater's "hour-hour rating" (FHR) should be within 2 gallons of this total in order to adequately meet your home's hot-water needs.

**EXAMPLE:** Your household uses the most hot water during a one-hour period in the morning.

3 showers x 20 gal = 60 gal  
1 shower x 2 gal = 2 gal  
1 shampoo x 4 gal = 4 gal  
Bathing baby by hand x 4 gal = 4 gal  
Peak-Hour Demand: 70 gal  
Recommended FHR: 60-70

Use	Average Gallons of Hot Water per Minute	Water Used in One Hour	Water Used in One Hour
Shower	20		
Bath	20		
Morning	2		
Washing hands and face	4		
Shampooing hair	4		
Disinfecting by hand	4		
Showering	14		
Food preparation	8		
Washing clothes by hand	20		
Children washing	20		
<b>TOTAL</b>			
<b>Peak-Hour Demand</b>			

Source: EPA



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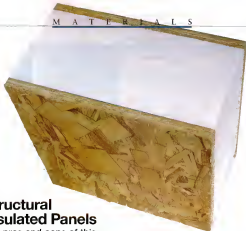
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VIAGRA is indicated for the treatment of erectile dysfunction. Remember that no medicine is for everyone. If you use nitrate drugs, often used to control chest pain (also known as angina), don't take VIAGRA. This combination could raise your blood pressure to drop to an unsafe or life-threatening level.

Discuss your general health status with your doctor to ensure that you are healthy enough to engage in sexual activity. If you experience chest pain, nausea, or any other discomforts during sex or an erection that lasts longer than 4 hours, seek immediate medical help. The most common side effects of VIAGRA are headache, facial flushing, and upset stomach. Less commonly, vision changes, blurred vision, or sensitivity to light may briefly occur.

Please see patient summary of information for VIAGRA (20 mg, 30 mg, 40 mg) tablets on the following page.





## Structural Insulated Panels

The pros and cons of this alternative to stick framing

By Jefferson Keller

**N**ew Hampshire builder Jim Leroy's crew can close in a 5,000-square-foot house in just three days. It's not that Leroy works any harder than the next guy. It's that instead of using a thousand sticks of lumber and roll upon roll of fiberglass batting, Leroy builds his houses with structural insulated panels—great sandwiches of oriented strand board (OSB) sheathing stuck to a core of insulating foam. The panels, known as SIPs, are made in a factory, then trucked to the building site, where they are fastened together around a foundation like so many giant playing cards. "Not only is a SIP house quicker to erect," Leroy says, "it's stronger, more energy efficient, and more comfortable than a house built with 2x6 walls."

Marked as the next great building technology when they were introduced in the 1950s, insulated panels were somewhat fac-

*Furniture OSB panels are made in a factory and erected on-site. Properly built, a house made of panels can be sturdier and more energy efficient than one constructed of wood with sticks of lumber.*



PHOTO COURTESY OF ALLCOAT, INC.

**3**

WIRES

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**2**

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**1**

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## M A T E R I A L S

good choice for parts of the country that experience severe weather, and in fact SIP houses have survived hurricanes, tornadoes, and earthquakes that have knocked rock-built houses flat.

### BUILDING WITH PANELS

When a load of SIPs arrives at a job, the building goes together quickly. The panels, which come in sizes up to 5 by 24 feet, are be cut to shape to the factory for any building section, be it attic roof, hip roof, or window bay. During the manufacturing, standard window frames are cut into the foam, a vertical gap every 4 feet and horizontal gaps at both ends and window height. Plumbing lines are not typically run through the exterior walls.

Panels are lifted into place, sometimes with the help of a crane for large sections. A joint between panels—often an integral and groove set typical—adds strength and prevents air and moisture infiltration. Depending on the manufacturer's design, joints are taped and/or filled with expanding foam or adhesive. Additional layers of drywall, decorative wood sheathing, or siding can be applied to the factory but are typically added on-site. "Another benefit of a SIP house is that you only need one experienced person on the crew," says Bill Wickliffe, president of the Structural Insulated Panel Association (SIPA), a manufacturer's consortium. "That makes a big difference in today's labor market."

But because many builders have had limited exposure to SIPs, working with an experienced contractor is essential. "A SIP house is like a big Lego set with all the pieces numbered. It can be a bit daunting until you learn how to put the pieces together," says Crowley. "Once you know how, it is very simple." All leading panel manufacturers offer ongoing programs on how to build with their products. Just as you wouldn't hire an inexperienced arch builder, you should look for a contractor and subcontractors who have built with SIPs. A good way to test is by checking out the SIPA Web site ([www.sipa.org](http://www.sipa.org)) and searching the database for a builder, designer, or manufacturer in your area.

### WORKING OUT THE KINKS

For all its advantages, SIP construction is not without drawbacks. There have been

reports of insect and pest infestation with composite roofs in particular. But to counter this the foam. According to the Department of Energy study, prevention guidelines include using panels treated with borates and treating the surrounding soil with insecticides. Several years ago, joints in some SIP houses in Jonestown, Alaska, had to be replaced when mold began appearing on the walls. An investigation, commissioned by panel manufacturers and conducted by Earthwatch, concluded that leaky joint design and the failure to properly seal joints between panels is the number one moisture problem in the worldwide of the exterior OSB is not causing it. Because SIP structures tend to be more airtight than conventionally framed ones, it's especially important to control the buildup of moisture inside a house with an exhaust fan and ventilation system.

Cost is another controversial issue. SIP houses are more expensive to build, although reduced labor costs and savings on heating and cooling systems can offset that outlay. Crowley and his partners in SIP Builders, Nick Cornishall, were experienced stick builders when they started their company. "We speak cost closely," Cornishall says, "and we know that a SIP house costs only 2 percent to 5 percent more to build than a framed one." The end savings are a payoff after a homeowner's energy bill, he says. "Our customers come to us because they are concerned about getting a house that is energy efficient. They tell us that their heating and cooling bills are on average 30 percent less than their neighbors' in similarly sized houses."

Costs and savings vary by region, so if the idea of SIP's appeals to you, first seek out an experienced contractor in your area. Longer travel distances often mean a higher price tag. Ask builders how many SIP houses they've put up, which manufacturers' products they use, and whether they've ever had any difficulty for problems with moisture or insects. Request referrals and cost a few houses. Talk to the homeowners about construction costs and energy bills. And if you like what you hear, then there may be a SIP house in your future. ■

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# Choosing & Using a Random-Orbit Sander

The tool that takes the hassle out of sanding wood

By John Kelsey



Hand and power tools are the best way to make a great job. But when it comes to sanding wood, a random-orbit sander is the way to go. It's the only tool that can sand a curved surface.

A random-orbit sander can sand the socks off your old vibrating sander when you've got to strip paint off furniture, prepare new molding, or clean up between finish coats. It can also smooth and clean metal and composite materials such as solid-surface countertops. "On the TV projects and at the New Yankee Workshop, we use random-orbits more than any other sander," says This Old House master carpenter Norm Abram.

These machines owe their versatility to their unique motion: The sandpaper disc spins in a circle while the whole pad moves in an oval loop. As a result, no single abrasive particle follows the same path twice, leaving a swirl-free finish even when sanding across the grain. But while random-orbits work more quickly than vibrating sanders, they can't aggressively remove a lot of material—for that, get a belt sander for flat surfaces or a disc sander for curved ones.

When choosing a random-orbit sander, look for a motor size, body configuration, and pad size (5- or 6-inch) that fits your workload. A decent palm-size unit will cost between \$50 and \$100, while heavy-duty right-angle or in-line ones cost \$150 to \$200. Whichever type suits you, be sure to get a model with built-in dust control. If you have a shop vacuum, do what Norm does and connect the sander to it. You don't want to breathe in any of the material that these sanders remove so effortlessly.

PHOTOGRAPH BY ALLAN PENK

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## Choosing a Sander

### Palm sander

For small projects, such as stripping furniture or sanding a drywall patch, a palm sander is tough enough to do the job but easy to use. These little machines get their power by spinning quickly—at least 70,000 times per minute. Compact and light, they can be held either over 1 or 2 legs or pressed flat back, whichever is more comfortable.



### Right-angle drive

With a horizontal or vertical shaft and cable to finish, you'll find a sander that can work all day without overheating. A right-angle machine, with its telescopic, barrel-style body, runs a powerful 2 1/2- to 3-hp motor at a relatively slow (and cool) 5,000 orbits per minute. Higher-priced units have precision bearings and better gears that slide back and forth longer.



### In-line drive

When you have a lot of sanding but don't feel comfortable with a big right-angle machine, try a well-known choice with the job. It's a good compromise between small palm sanders and beefier models, especially for people with small hands. Also, you can grab the handles from each side instead of having 1 grip right in front of you.



### And in this corner...

#### Detail sander

Though it's not a random-orbit sander, a detail sander can go where random sanders can't. Its irregular pad, which spins without needing, can fit into small corners, making it a great tool for finishing furniture or sanding intricate moldings. Top-of-the-line specialty models have optional accessories, including longer blades and built-in dust sacs.



### Features to look for



#### Hook-and-loop disc

Almost every flat sander by a Vortex-like hook-and-loop system a few you'll change grids and find 1 better size disc before a job. They're more expensive than adhesive discs, but more convenient in the long run because they can be reused. Be sure to verify the disc's dust-collection holes to the dust on your machine's pad.



#### Variable speed

You want your sander to remove material quickly but not so aggressively that it chews through thin veneers or delicate coats of finish. The solution is variable speed control. To get the most out of this feature, choose the tool with the widest range of speeds. A soft-start option, which lets the machine ramp up slowly to full power, also helps protect tender work.

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## Getting the Smoothest Surface

Sanding tips from Norm Abram



### Starting and stopping

To avoid scuff marks, Norm Abram always plants the disc on the surface before he starts the motor and lifts it off the work before shutting down. However, some sanders (with fixed wheels) startling, which is why it's a deep (and annoying) groove with those tools, it's better to start in the air and then land flat on the work with the motor running. Experiment on scrap wood to see which approach works better with your sander.



### Sanding flat surfaces

Glide the machine across the surface, working from side to side so you're sure to sand everywhere without dwelling too long anywhere. Work down to sand the whole surface, across the grain, then diagonally to this grain, then with the grain before dropping to a finer grit. Keep the machine moving, but don't press hard on "sander"-like sanders use weight, plus your gentle steering control, is most efficient and effective.



### Sanding edges

Lift the sander off the work when you want to move from a flat surface to an edge. If you find it hard, you'll sand all the chips away. Center the edge on the pad and use both hands to help hold the pad square to the wood. A quick saw cut, which starts without rubbing, is an easy way to guide along an edge.



### Cleaning up

Reverse of the sander's motion, any ring marks of dust left on a work piece can cause deep scratches. Sand over the best dust-control system will leave some particles behind. Norm always vacuuming the work after each sanding and finishing with a tack cloth.

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# great Gadgets

By Scott Schilling

We love gadgets. It's not that we need them, strictly speaking. But that's part of the appeal. Sometimes there's a gizmo that makes a familiar task faster, easier, or just plain more fun. For this holiday season, we present a few of our favorites. Some of these items are new and others have been around for a while, but all of them took our fancy.



## Gripper Glove

It's not just a glove. It's a system. GripTec fabric on the palm meets with a strip of the same material wrapped around a tool handle. The dynamic increase in grip strength reduces arm fatigue and helps dampen vibration. Inland Performance Wear ([www.inland.com](http://www.inland.com)), \$20.75

## Kinetio Flashlight

To make this flashlight work, just give it a shake. Thirty seconds' worth provides five minutes of illumination, and an additional 15-second shake every five minutes keeps it lit. An internal magnet generates the electric current. Shaper Image Design ([www.shaperimage.com](http://www.shaperimage.com)), \$29.95



## Quick-Release Magnet

A circular magnet within the steel housing quickly picks up spilled nails, screws, or any ferrous debris. Pull up on the handle and the magnet releases its grip, depositing the load where you want it. Leo Valley Tools ([www.leovalley.com](http://www.leovalley.com)), \$9.95



PHOTOGRAPHS BY MICHAEL HEND

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## great Gadgets



### Electronic Locator

Never misook the house in search of your keys again. Attach a longer disc to keys, TV remote, cell phone, or PDA. Press the corresponding button on the system's portable transmitter base and when you get within 30 feet of the base, the disc will beep. (Sherman Image Design; [www.shermanimage.com](http://www.shermanimage.com); \$49.99)



### Motion-Detecting Sprinkler

The Sprinkler keeps critters away from flowers and vegetables. When animals venture near, a motion detector in the head unleashes a blast of water. Connects to a garden hose and runs on a 6-watt battery for up to six months or 3,000 cycles. (Contact Electronics; [www.contactelectronics.com](http://www.contactelectronics.com); \$75)



### Backyard Bird Cam

With the Surveillance Bird Feeder you get a close-up view of backyard avian visitors (and their inquisitive competitors). The wireless color camera and infrared beam send the images and sound to a TV or VCR from a distance of up to 200 feet. (Hammerhead Electronics; [www.hammerhead.com](http://www.hammerhead.com); \$129.99)

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## great Gadgets



### Stud Finder Drill

Before you can drill into a stud, you need to locate it. With a new cordless-drill has a detachable stud finder built right in. Other detachable accessories, such as an hole for measuring, router and drill bit, are available separately. Skil Power Tools (annapolis.org, \$69.99), also available in 12-volt and 14.4-volt models.



### Multi-Screwdriver

It's 7. It has a three-finger-head, three-bit-head, and two-eyeglass screwdrivers built out like spider legs and wrap into a hand position for use. The drivers have magnetic tips, and the case doubles as a flashlight, allowing you to peek into dark space before underneath vehicles. To Global Marketing ([www.globalmarketing.com](http://www.globalmarketing.com)), \$12.99.



### Built-In Bits

Switch from drill to driver (a leader) than you can find a screw key with the 12-volt cordless drill (DR). An universal composite handle has 10 bits (drivers and one shafted driver) plus two bits for drilling wood and metal. A laser extends each bit from the barrel, and a scale of the keyhole shows bits & signs. Extra battery included. Craftsman (www.craftsmantools.com), \$69.99.

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## Great Gadgets



### Laser Level

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### Digital Angle Finder

This sleek steel level is also a digital tool for measuring corner angles, as well as calculating bevel and gear angles for sailing molding. Requires four AA batteries. Bosch Power Tools, 8405 80



### Suction-Cup Lifter

A heavy version of the suction-cup carriers used by professional glass installers, these powerful suction cups can hold up to 115 pounds. Great for transporting sheet rock, glass, stone, or polished Lee Valley Tools, 824 50

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## The Best Protection

By MAX ALEXANDER

The right kind of home safe can provide bank-vault security with round-the-clock convenience



**W**hen it comes to protecting valuable objects—from heirloom jewelry to wristwatches or digital wedding photos—nothing beats a home safe. More secure than a mattress and more convenient than a bank vault, able to guard against theft and the ravages of fire, safes are becoming the new must-have home accessory. With high-end models costing \$5,000 or more, many homeowners are treating them like the latest kitchen appliance, installing them in family rooms, home offices, even under kitchen counters. Manufacturers, who report sales spikes of up to 10 percent so far this year, are responding by equipping safes with dehumidifiers, low-voltage lighting, even glass-plate hinges and rich automotive paint jobs in a rainbow of colors. "Safes don't have to be spartan black boxes anymore," says Dale Tring, director of marketing for Liberty Safe in Peoria, Utah. "People want them to be a part of the house, not where they can be seen and used."

### FIRE PROTECTION VERSUS THEFT PROTECTION

Traditionally, safes have been designed to ward off fire or theft, but usually not both. Fire-resistant models contain a layer of mineral-based fire retardant (either gypsum or concrete) sandwiched between thin sheets of steel that are relatively easy for a thief to bash or drill through. Conversely, safes made with layers of steel sheets, some forming walls up to 2½ inches thick, might fool burglars, but

**ABOVE:** A combination lock, whether it's an old-fashioned dial (bottom) or an up-to-date keypad (top), is far harder than most keyed locks for burglars to get past. Some combination locks also have built-in BATTI. Perhaps one day a new generation of locks—like those that detect coded vibrations and fingerprints—will render these manual mechanisms obsolete.

PHOTOGRAPHS BY KENNETH ORIN



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A fireproof manual, typically copper or aluminum, fills the walls and door of a fire-resistant safe. The thicker the layer of material, the longer the safe can withstand intense heat. But because the metal is extremely thick, these safes are never vulnerable to forced entry, thus their metal walls thicker and plier.

They haven't expired as a single standard, making comparison shopping difficult. The most respected ratings come from Underwriters Laboratories, which conducts tests based on standards developed by the insurance industry. A common UL rating for burglary resistance is TL-15, which means the door and lock, the most vulnerable elements, withstood 15 minutes of tampering by an expert armed with drills and sledgehammers. You can spend a few thousand dollars for a TKTL-30 and TKTL-40 (resistant to cutting torches and tools for 30 and 60 minutes, respectively) or, more modestly, models rated TKTL-40 (resistant to explosions and 60 minutes of tool attack), but security pros say going anything higher than TL-15 for the home is overkill.

For protection from fire, the most common UL rating is 350-1, which means the temperature inside the safe won't exceed 350 degrees during the first hour of a typical house fire; by then, the fire department should have done its job. Paper, which chars at around 400 degrees, will be safe to read, but anything made of plastic, such as CDs, film, and videotapes, melts at about 310 degrees. Here's where you could find a cooler case to use: Made of metal or plastic, these could use a variety of reinforcements, including crystals that turn fog of when activated by heat, to keep internal temperatures from rising above 125 degrees. Prices start at \$199 for a small plastic cooler and go as high as \$13,000 for a large steel-alloy metal safe.



## The Ultimate Test

The fire started in the basement and spread quickly through the chimney until the whole house was consumed in flames. When it was over, "all we had left were the clothes on our backs," says the owner of this 10-bed ranch house outside Detroit.

Not only, in the same basement room where the fire started were five safes containing the owner's extensive collections of coins, pocket watches, and guns, many of them rare. He had purchased the safes, for about \$2,000, because he felt the insurance policy could not replace the sentimental value of these family heirlooms. But when he saw them amid the charred ruins, he heart sink. "From the outside, they looked pretty bad. All the paint was scorched and peeled. The locking brackets that were sitting on top of them had melted in the heat." Taking a deep breath, he opened one up. "Before it got hot, nothing was damaged at all, not even my grandparents' birth certificates," he says. "Everything in those safes was the best decision I ever made. Now I'll be able to hand down these collections to my own grandchildren."

### THE BEST PLACE TO INSTALL A SAFE

Fireproofing floor safes are the most common type and also have the largest capacity. Some models fit inside standard depth cabinets as a kitchen or linen closet. Others, when sold as gun safes, stand 6 feet tall and have as much as 35 cubic feet of storage space. Consider Gardens points out that gun safes can't be broken into without a permit or a gun license. Any safe weighing less than 750 pounds should be bolted to the floor, he says. "Otherwise, a few guys can carry it right off." If you're planning to install one of these units anywhere other than a concrete slab, however, check with a contractor or engineer to make sure your floor can withstand the load.

Wall safes, which are mounted into and with the masonry, are easy to use because they can be positioned at eye level. But they're small and usually for fire protection, a determined thief could simply cut one out of the wall and take it away. In-floor safes that are mounted in concrete slabs have doors made of small metal covers and are usually impossible to carry.

### Plastic Safes?

The notion of a safe made of plastic may seem impossible, and indeed few examples would have difficulty crushing one of these. Eighteen-year-old Tim Lin is a much more common awareness to him than that, and he's 800 you can buy a multi-plastic bottle (like this one from Shure). Just after a fire that protected documents from a 1,200-degree burn for up to 30 minutes. (Please fire add-on a second 500 degree) During a

fire, the plastic shell melts, and a 1/2-inch-thick layer of moisture-resistant material expands against the fire. The rubber cover has to be attached again, but its contents should be unharmed. For a few dollars more, you can get a model that also melts out molten, protecting papers from fires and damage by the heat.



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## Before you start



- Protect the floor with a canvas drop cloth or newsprint paper. Turn off the power and remove all wall fixtures and switch plates, covering any exposed wires with electrical tape.

- Examine areas around switch boxes and outlets to see if the walls are plaster or drywall. The steps that follow show how to remove wallpaper from plaster walls or from drywall that has been primed or prepped. Less typically, wallpaper has been applied directly over unprimed drywall. If you don't see a layer of joint between the paper and drywall, read "The Exception: Unprimed Drywall" on page 76.

- Determine the type of wallpaper by peeling back a corner and tearing away a bit. If the pieces come off in small strips, it's plain paper, which gets soaked in stripping solution. If the wallpaper peels off in a big sheet, leaving behind a paper backing material, it's vinyl. In that case, peel away as much of the vinyl top layer as you can, then strip the backing material in one piece if possible.
- If the paper comes off the wall intact, backing and all, you're in luck. You have dry-eraseable vinyl wallpaper (popular after the late 1970s). Just pull it all down and skip directly to Step 4.



### 1. Score

Roll a handhold perforating tool (about \$11 at a paint or hardware store) across the paper to make tiny cuts so the stripping solution can easily soak through and dissolve the adhesive. (This step is not necessary on the thin paper backing that vinyl leaves behind when you peel it off.) Use a light touch; too much pressure can cause damage, especially in drywall. "You just want to tick the paper," Jim Clark says.



### 3. Scrape

To get the best results on plaster, scrape off the wet paper with a long-handled wallpaper scraper that has an angled 4-inch blade. With drywall, which is softer, use a dull putty knife instead, to avoid gouging. Work your way down from the top of the wall with long, sweeping strokes. On stubborn spots, keep half the blade on the already-stripped wall so you work the edge of the paper.



### 4. Clean

Once the paper is stripped, clean off the paste residue thoroughly. "Lather up an old towel and peel raw paste," says Clark. Spray the wall with the same stripping solution, then scrub it with an abrasive dishwashing pad. Next, wipe the walls with a water-soaked rag, rinsing often. (With drywall, be careful not to soak through the face paper.) Repeat this process until the walls no longer feel slimy with glue. "An hour spent washing the walls will save you a ton of time in future repairs," Clark says.



### 6. Prime

Regardless of whether you are planning to paint or wallpaper, prime the walls. Paint will cover better and wallpaper will be easier to peel the next time you want to change it. Clark recommends an oil-based primer for plaster, but for drywall he uses a water-based "steam-killing" primer such as Glidden's 1-2-3 or Kwik-Kill (which can also be used on plaster).

For more on wallpaper, paint, and decorating, go to [www.theoldhouse.com](http://www.theoldhouse.com) (America Online keyword: The Old House) and click on Interiors.



### 5. Repair

After the walls have dried, cover any cracks, nail holes and gouges with a lightweight spackling compound, applying and smoothing it with a putty knife. Once the patch has dried, sand it smooth with 120-grit sandpaper (but finish with a 220-grit paper).



### 2. Soak

Use the stripping solution—typically one part solvent to four parts hot water—in a garden sprayer. Clark prefers vinegar-based products, such as Zep and Simplex or D-5, which break down most pastes. On plaster walls, spray the solution liberally. "You can't get plaster wet enough," Clark says. "It'll be drying." Wet it until it's 10 to 15 minutes for the solution to soak in and soften the paper. On drywall, work in smaller segments; one less solution and don't wait so long so the wall doesn't become saturated.

## The Exception: Unprimed Drywall

If your wallpaper was applied directly over raw drywall in a bathroom, you've probably heard it called "leaky drywall" in the 1990s, or you might be used to little more than a gut it off without needing to make. According to Louis Lipari, a wallpaper removal specialist in Flatbush, New York, and a member of the National Guild of Professional Paperhangers, drywall that wasn't primed or prepped before being papered is more likely to have absorbed the wallpaper adhesive and bonded tightly to the paper. He's never Lipari's name while getting the stubborn stuff off before moving on to the sanding, mudding, and priming steps listed above.

- For plain paper wallpaper, the best bet is a good old-fashioned rented sander, which does less like glue without making the dust. "Hold the sander over a small area for one minute and then gently scrape with a putty knife," Lipari says.
- For the paper backing left behind by vinyl wallpaper, spray with abundant water as you would on plaster or soaked drywall. But because the backing is so thick and porous, be even more careful not to soak the drywall itself, which would damage it.
- If wallpaper is the drywall's enemy, unfortunately neither sander nor chemicals can penetrate the wallpaper surface, and trying to yank it down usually means taking some of the drywall's top paper with it. A slow, careful peel works best. Strip the covering near the ceiling and gently pull it downward, keeping your hands within an inch of the wall.

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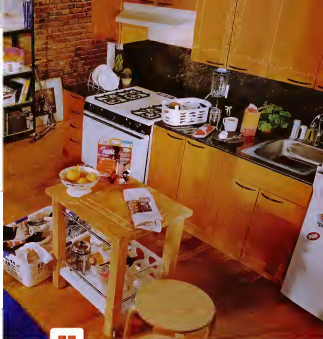


*The old fireplace was removed with a new hearth and surround made from slabs of honed black granite.*

## Fireplace Face-lift

Installing a new hearth and surround

BY JEFFERSON KOLLE PHOTOGRAPHS BY BRIAN WILDER



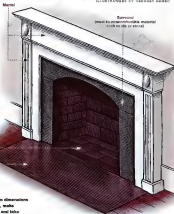
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# Getting Started

**C**hipped bricks, a stained hearth, and years of accumulated soot can turn what should be the focal point of your living room into an eyesore. Replacing a hearth and surround—either with seamless stone slabs or with ceramic or stone tiles—makes a big difference in the way a fireplace looks.

On these pages, mason Dan McLaughlin, with help from carpenter Thad King (at left in Step 1), shows how to replace an old quarry-tile hearth and cover a brick surround with four sleek granite slabs, each 1½ inches thick. It took McLaughlin and King just a few days' work to rejuvenate this fireplace and install the existing mantel. Installing a tile surround might take a bit longer, but there's less heavy lifting than with stone.



## ORDERING MATERIALS

**STONE SLABS:** Keeping in mind the minimum dimensions dictated by code (see "Code Check," far right), make careful measurements of the place you'll need and take them to a fabricator that specializes in stone countertops. They'll need a few marks to make the cuts. They will charge by the square foot and for each cut, as well as for every edge they polish. In this case, only the inside perimeter of the surround requires polished edges.

**TILE:** Make cardboard templates as you would with stone, and then plot the layout of the tile on them. This will give you an exact count, but order at least a half dozen extra tiles in case there's any breakage during installation or any damage that has to be repaired in the future.

## PREPPING THE HEARTH

**STONE OR TILE:** A rented demolition hammer makes a quick job of removing the old hearth material and the mortar underneath. (Knee pads make using it less painful.) Excavate down to firm concrete before laying with concrete (see Step 3).

## PREPPING THE SURROUND

**STONE SLAB:** The simplest solution is to leave the existing surround in place (if it's sound) and fitmost the slabs to it. Scrape or chisel away any high spots—you can find them by pulling the edge of a board over the surface and squaring or leveling marks.

**TILE:** After scraping and chiseling the old surround, an shovel, broom or thin, flat layer of mortar over the old brick. Wait a day for it to harden. Then, on this surface, set the tile in mortar—usually an offset with back.

## PREPPING THE MANTEL

If you're reusing the old mantel, filler strips will have to be fastened to its back side to account for the increased thickness of the surround (see Step 1). Buy (or have a network shop out) molding cutters to match the ones on the mantel.

ILLUSTRATION BY BARBARA BARNES

# Step by Step

1



## Try off mantel

- If the mantel is to be reused, mark its outline on wall and floor.
- Use prybars to gently remove mantel from wall (see it).
- Make sure all wood framing and joists are at least 2 inches away from the firebox opening, as required by code (see "Code Check," below right).

**TIP:** This is a good time to consider building or buying a new mantel.

2



## Remove old hearth

- Tape thin plywood or cardboard to floor around hearth to protect floor from sparks and debris.
- Use demolition hammer with a chisel bit to chip away old hearth and the mortar underneath (see it). Leave concrete hearth base and finish floor intact.
- Brush and vacuum debris and dust from hearth base.

**TIP:** Mix eye and ear protection and a dust mask when using a demolition hammer.

5



## Set hearth in place

- Use suction cups to lift and set hearth slab (see it).
- Press down firmly on hearth to adhere slab to mortar.
- Check that hearth does not rock. If it does, lift hearth and add mortar.
- If the hearth is meant to be flush with floor but is too high, tap on the stone with the rubber mallet; if the hearth is too low, lift it and add mortar.
- Fit joint between firebox and hearth with mortar. Grout off excess and sand smooth.

6



## Set surround pieces

- With trowel, scrub filler into backs of side pieces.
- Set each piece in place on top of hearth and press against brick. Make sure inside edges slightly overlap the sides of the firebox.
- Lay straightedge across tops of side pieces. Check that they align. If not, push them slightly.
- Scatter mortar on top pieces. Set it on the side pieces (see it). Press tight to brick. Check that joints are flush.
- Allow trowel to finish overnight.

# To Do List



3

## Prepare hearth base

- Notch the ends of a 2x4 to make a corner that's a foot longer than the hearth; its bottom should fit snugly in the excavated area. For a flush hearth, cut the notch depth equal to the thickness of the new hearth stone, plus 1/2 inch (2x4 shown).
- Set the hearth base in place and pour concrete topping.
- Set ends of curved or flared, radiused stones. Pull it across hearth while setting it quickly from side to side (shown).
- Add or remove topping mix and continue to pull stones across it until base is flat. Smooth with a trowel.
- Let mix set overnight.



7

## Fit wood mantel

- Set mantel on hearth, tight against new masonry. Align with outline on wall.
- Measure from back of mantel to wall. Cut wood filler strips to that thickness.
- Glue and nail the filler strips to back of mantel flush with its edges. Glue and nail molding extensions to strips.
- Using a compass, scribe the stone where they touch the wall (shown). Cut along scribe lines with a jigsaw.



4

## Spread thinset for hearth

- Stick section edge to new hearth slab and test fit on the hearth base. (If the stone is too big, trim the footing with a circular saw.) Remove stone.
- Mix enough thinset mortar to cover hearth base.
- Pour thinset onto base.
- Combs the footed board through the thinset to raise evenly spaced furrows across entire surface (shown).
- Save leftover thinset for next step.



8

## Fasten mantel to wall

- Mark the location of wall framing.
- Set mantel so it's centered on the surround.
- Push mantel tight to wall and surround.
- Tossal mantel into framing with 1d finish nails (shown).

## Code Check

**B**uilding codes—and the inspectors who enforce them—are very strict when it comes to the size of the hearth, how close a wood mantel is to the firebox, and the clearance between a chimney and any combustible material. It takes only one errant ember or overheated stud to spark a fire that sends flames ripping through a house. Here are the basic rules.

### 1. HEARTH MINIMUMS

Opening into Room 2 sq. ft.

Opening into Room 2 sq. ft.



### 2. SURROUNDING WALL

All wood—whether framing, sheathing, siding, or lath—must be at least 2 inches from a masonry fireplace and chimney.

### 3. MANTEL CLEARANCE

Wood materials must be kept 1 inch away from edges of firebox for every 1/2 inch of mantel thickness. Any projection more than 1 foot from the top of the firebox is exempt from this rule.



## Tools



1. Knee pads
2. Demolition hammer (can be rented)
3. Suction cups: for moving heavy slabs of stone
4. 1/2-inch notched trowel
5. Brick trowel: for smoothing topping mix in corners of hearth base
6. Flat finishing trowel: for smoothing topping mix on hearth base
7. Brick hammer
8. Rubber mallet
9. Mason's brush: for wetting hearth base before topping mix is applied

### Also Needed:

- Straight 2x4: for scored
- Circular saw: for trimming floor
- Jigsaw: for trimming wood mantel

For an archive of *Homeowner's Handbook*, go to [www.thisoldhouse.com](http://www.thisoldhouse.com) (Internet Online keyword: The Old House) and click on Homeowner's Handbook.





*One hour, that's how long it took to get the new landscape design at the TV project site. How to remove these large maple trees from the small back yard. The solution: bring in a crane.*

# yard work

***Before the flower beds and shrubs can be planted at the TV project house, some landscape trouble spots need attention***

by Jefferson Kolie

**H**omeowners Bruce Leasure and Kim Whittemore have big plans for the small suburban lot at the *This Old House* TV project house in Winchester, Massachusetts. Kim is a master gardener, and once the work on the house is finished and the couple can move in, she'll be itching to get her hands back in the soil, planting trees, flowers, fruits, and vegetables.

But first, TOH landscape contractor Roger Cook and the rest of the crew have a few things to do to prepare the property for the spring gardening sea-

son. Several large maple trees in the backyard need to be taken down to import more sunshine and make room for new landscaping, while a couple of sick hemlocks need medical attention to restore their health. At the same time, TOH plumbing and heating expert Richard Trethewey is working with Roger on installing a European rainwater collection system that will keep Kim's plants well hydrated in the years to come. "This is so exciting to me," says Kim. "I get as big a kick out of this as I do all the stuff that's going on inside the house."



## Tree Removal: Up, Up, and Away

**S**heren McDonough doesn't take down trees. He takes them up, literally. In the tight quarters of a suburban back-yard truck at the site of the Winchester project house, instead of cutting off limbs and dropping them, this tree removal expert uses a crane to lift them over the house and to the ground.

"It's safer for the landscape," says McDonough. "We can avoid severing adjacent shrubs and fences, not to mention staining up the lawn." Using a crane also makes the job go faster. In just four hours, the three-man crew removed three large maples and two smaller hawthorns.



### ◀ Look Out Below

A 124-foot air-cable crane comes the severed top of this backyard maple high above the house, over the roof, and onto the driveway. Tree-removal expert Sheren McDonough was able to park the crane in the driveway, avoiding damage to the roof of the house and the fence and leaving no mess of stumps, stumps, work areas, and chipmunks.



### ▶ Into the Chipper

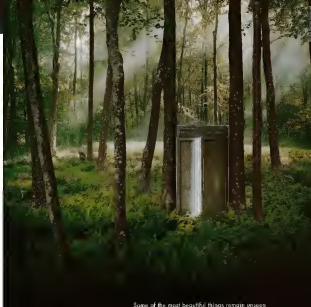
The crane deposits each of the tree's cut limbs onto the driveway, where they are fed into a chipper. The 6-cylinder diesel-powered machine turns the wood into a spray of chips directed into the back of a large truck. Trunks and limbs too big for the chipper's 20-inch diameter capacity get tossed off in long lengths for firewood.



### ▶ Limb by Limb

With the crane keeping tension on the top section of an already braced trunk, climber Phil McBride slices through. The crane then lifts the cut section out of the backyard and loads it onto a waiting fire truck. Although safety is a top priority, climbing a tree isn't too scary for Sheren. He's been climbing trees since he was a kid.

PHOTO: JEFFREY L. HARRIS



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## Trees in Trouble: Woolly Adelgid



ABOVE: Arborist Matthew Foti treats a hemlock infested with woolly adelgids by shaking small holes every 6 inches around the base of the tree. He then seals filled with an insecticide into tubes he's drilled into the base. *Adelges*: The woolly adelgid, a tiny, poppy-seed-size insect, leaves behind white egg sacs.



Arborist Matthew Foti approaches two inch-thick hemlocks that stand above the front of the house. Reaching up to pull a small branch from the top, he points to a fully white-tipped pine needle. Early snow? Deprived? "It's woolly adelgid," he says. "And it's devastating hemlocks all along the Eastern seaboard."

According to the USDA Forest Service, the hemlock woolly adelgid arrived in this country in 1934, most likely from Asia. The sap-sucking insect attacks tiny, softening egg sacs to the base of needle clusters, depriving them of nutrients and quickly turning the needles brown. Defoliation and death happen later—often in just a few years. Infestations have occurred from the Rocky Mountains in the Appalachians to southern New England. "For a long time, the adelgid stopped at the Massachusetts-New Hampshire border," says Foti. "But it's now getting as far as Maine."

Sprays are the most common method of killing adelgids. But according to Foti, "Sprays can wash off in the rain, and the overpray gets on everything from picnic tables to neighbors' cars." His preferred method of combat is to treat the trees systematically with an insecticide called *Adagis*, which he injects into the tree's cambium, the outermost layer of cells where water and nutrients slowly upward to the top of the tree. "It's like getting IV drugs in the hospital," he says.

But drills would holes around the trunk's circumference, then taps in small, hard plastic tubes. Flipping down his hair sheath, he inserts a 3/16th-inch hole into each tube. "It's a powerful chemical," he says, "but something you want to get in your eyes" (find-out-shaped wads of kumquat or kumquat-ess who he applied this way to make the holes at several times.) The insecticide is carried right up to the uppermost needles. "It's amazingly effective," he says. "We use the same methods for grey rot and when we come back five hours later to remove the wads, it's making dead camellias."

The serious treatment, which must be done by someone with a pesticide-application license, costs from \$180 to \$150 a year per tree. "It's worth every penny," he says. "How could you put a replacement value on mature trees like these?"

### Areas infested with hemlock woolly adelgid



## TREE-KILLERS ACROSS THE LAND

Several other insects and diseases are on a course to eradicate entire tree species, much like the chestnut blight, a fungus that wiped out

the American chestnut in the first part of the 20th century. Here are six of the most harmful threats to native American trees.

Problem	Native Tree Species	Area at Risk	Description/Treatment
 Bark-boring beetles	 Many species, including maples, fruit trees, oaks, pines, and oaks		<p>Four main groups—white-pine longhorned bark beetle, spruce longhorned bark beetle, mountain pine beetle, and red-bellied bark beetle—have taken hold in the trunk and limbs of many trees. Infested trees are removed and burned to curb their spread. Systemic injections of insecticides have been promising.</p>
 Budden oak death	 Oak, redwoods, and Douglas fir		<p>An exotic fungus discovered in 1995. Leaves on diseased trees turn brown and the leaves turn black. "Budden" is a leading bark beetle that by the great oak. Budden oak death is rapidly killing coastal oaks and other species in California and has recently spread to oaklands and Douglas fir forests of along the Pacific coast. Oak is the South and East end of oak as well. No known cure.</p>
 Crown rot	 Flowering dogwood		<p>Doyle's rot, a fungal disease known as leaf, shoot, and bud blight. This slow-killing fungus is the cause of crown rot in the West. During drought, water stress of trees, not drought, is the primary cause of crown rot. During drought, water stress of trees, not drought, is the primary cause of crown rot. During drought, water stress of trees, not drought, is the primary cause of crown rot.</p>
 Gypsy moth caterpillars	 Gypsy moth		<p>Introduced in the 18th century from Europe. Caterpillars feed primarily on oaks and aspens, but will eat hundreds of other deciduous tree species. They are usually found in small, isolated infestations, which stop natural resources. Infestations are controlled by aerial spraying and natural predators. However, the caterpillars can cause death, defoliation, and even kill the tree. Natural predators and parasites.</p>
 Budden oak death	 Pine bark beetle		<p>Pestilence of this native bark beetle has been attacking large old trees and western longhorned bark beetle. Pests are found in the trunk and limbs of many trees. Infested or fallen trees must be removed and destroyed immediately. Some insecticides have proved effective.</p>
 Southern pine beetle	 Southern pine		<p>Resin-boring fungus causes knots to swell, rot, and die. Disease first spread by Dutch elm beetle. Has spread into hundreds of thousands of white oaks in the country over the last 10 years. A newly evolved sap-sucking beetle is killing many previously unaffected oaks, particularly in the Midwest. Planting resin-injected oaks helps. Systemic fungicides are effective preventative. There is no known cure since it reaches a tree's trunk and roots.</p>
 Budden oak death	 American oak		<p>Resin-boring fungus causes knots to swell, rot, and die. Disease first spread by Dutch elm beetle. Has spread into hundreds of thousands of white oaks in the country over the last 10 years. A newly evolved sap-sucking beetle is killing many previously unaffected oaks, particularly in the Midwest. Planting resin-injected oaks helps. Systemic fungicides are effective preventative. There is no known cure since it reaches a tree's trunk and roots.</p>

### **Watering: Collecting Roof Runoff**

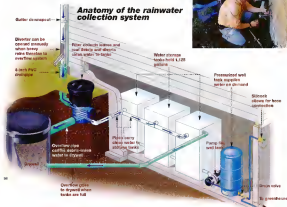
New England, like much of the country, has suffered recently from several years of drought, often making restrictions on watering lawns and gardens (as Winchester did this past summer). Because of this, Ken and Bruce decided to install a rainwater-collection system, which will provide them with a backup watering supply for their plants and lawn. Recently, Roger Cook and Richard Thielwieser installed those 375 gallon polyeethylene water tanks in a small basement room. "Everywhere else in the world, people collect rainwater," says Richard. "It makes sense in Massachusetts, too."

The tanks will be connected to the game development off the back of the house. Ranger and Richard calculated that, in a year with normal amounts of precipitation, 18,000 gallons of rain hit the relatively small 35-by-48-foot back lot. Uncollected, the water runs down the driveway and into the city storm drain. "We've got to store some of that for the weeks—or even months—when we get zero inches of rain," says Richard. The 1,125 gallons in the tanks at no cost will be the sole source for the diverse landscaping, but earlier in the year a supplement during long drought periods. "Last summer's watering had killed a lot of trees, shrubs, and shrubs," says Ranger. "Now they'll have had a summer used

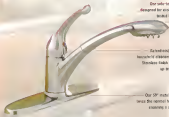


The floodwater remainder of last year's season will start 1,125 gallons, providing backup for the landscaping during hot, dry summers. **LAFFY** Rieger comments a hose to an outdoor sprinkler that draws water from the cistern's tank. **DELOACH** Richard plunks another good shot. Rieger fits a chlorophyll meter to his leaf.

### Anatomy of the rainwater collection system



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## Meanwhile, Around the House...

While the outdoor space in the Winchester TV project house got attention, work continues inside on several fronts. Finishing the master bedroom and finished basement, raising the

plumbing lines, and putting up blueboards for the plumbers in the kitchen. Here are some highlights around the site, from new products and technologies to discoveries about the house's past.

### Color-Coded Wiring

New color-coded wiring makes it easier for electricians to run cables and for inspectors to make sure the correct gauge wire is used for specific circuits. "It's one of those simple, why didn't I think of it ideas," says Allen Gelfand, the electrician for the Winchester project. "It used to be that all plastic-sheathed cable had white vinyl insulation on it. Now companies are beginning to make it so that 14-gauge is white, 12-gauge is yellow, and 10 is orange." Although Gelfand says that most electricians can tell a wire's gauge by touch and relative stiffness, the color coding makes it easy to do a quick inventory of the spots he has on site or in the back of his truck. And it makes an electrical inspector's job quicker. "All known appliance circuits have to be 20 amp, which means using 12-gauge wire," says Gelfand. "The inspector can come into the room, and if he sees all yellow wire, he knows everything's up to code."



### Walls Tell a Story

A lot of decoding history was revealed when several cast-iron radiators were removed from the bedrooms, uncovering patches of wall that hadn't been stripped in previous renovations. It appears that past owners had wallpaper hidden behind the flaking text sources; at one point, there were four different patterns layered atop one another. And under that was a truly delightful find: The wallpaper was decorated with a delicate motif of light-colored flowers. Says houseowner Kim Whittemore, "None of the papers did anything for me. But I would have loved to have seen what the painted petals and leaves looked like when they were first done."

### Ice-Free Steps

For concrete stairs may be a back-scratching hazard. That's why the uncovered backstep leading into the Winchester house's basement were like the front walkway, strong with hydronic heat tubing (paved) before TDV general contractor Tom Glines poured the concrete (below right).

The radiant tubing is much like in-floor heating systems in the house, with a few exceptions. "Because it will have to endure freezing outdoor temperatures, the tubing is filled with antifreeze instead of water," explains TDV plumbing and heating expert Richard Trifunovic. In addition, the antifreeze tubes are wrapped by a heat exchanger that uses hot water from the boiler. Outside, a predetonator and interior temperature sensor will activate the system when conditions demand it.

Use-it-or-lose-it customer installations: heated steps come with a price tag. Richard Glines says the work was worth it. He says, "One heat and water pump, \$300. Gas sensor, \$400. Cost of installing cracked sidewalk, priceless."



PHOTO: MICHAEL GOODMAN/PHOTOGRAPHY; PHOTO: JEFFREY BROWN/PHOTOGRAPHY

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# farmhouse FIX-UP

A young couple remodel their first home a weekend at a time

BY ANNE GRIDER

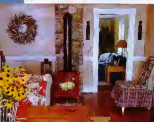
a

As the owner of a thriving Washington, D.C.-area remodeling business who is typically too busy managing his company to strap on a nail apron, Craig Durosko was itching to get hold of an affordable fixer-upper he could work on himself. Every Sunday, he and his fiancée, Shauna, would hop on his Harley and head for the peaceful, rolling hills of Virginia's Shenandoah Valley to house hunt. "We simply told the realtor that we wanted something within our \$130,000 budget that had character," says Craig. When he and Shauna were shown a modest 100-year-old farmhouse on a rural acre of land, they were sold. Never mind the peeling paint, asbestos siding, worn-out kitchen, and rickety beams. The 1,800-square-foot house had the original tin roof, heart pine floors, decent-size rooms, and a livable floor plan: living room, dining room, kitchen, and full bath downstairs, and three 12-by-16-foot bedrooms and another bath upstairs. The former owners had gutted the house 15 years before and then replumbed, rewired, insulated, and drywalled. "I figured they had done the dirty work," says Craig. "I was just going to do some minimal upgrades."

But once the previous family's furniture was gone, the empty house revealed serious flaws: Neglected, aged, and a shifting foundation had taken enough of a toll that Craig realized he



Living potential beyond the miles (credit: [owner's name]) of their 1961 farmhouse, homeowner Craig and Shauna Durosko (working) made their home more comfortable and contemporary, adding just enough old-time touches—like a wraparound porch—to preserve its character.



*space. Following the U shape plan of the existing kitchen, the upgraded new space features ceramic-appearing and maple cabinetry with glass-fronted display shelves and junkie drawers. The engineered stone countertop is intended to form a two-seater breakfast bar. L&L In the dining room, the easy look of a bench is created with a four-draw chest and a single end-gate seat.*

our neighbors," Craig explains, "and realized that we weren't just fixing up a house, we were putting down roots."

#### GETTING READY FOR A WEDDING

With their May wedding just a year away, Craig got down to restoration work while Shanna planned the big event. Because they

were looking at four years of work and another \$150,000 to get and redo every room, "I began to think buying this place was the dumbest thing I ever did," says Craig. But after he and Shanna moved in—to the only habitable bedroom—the couple began to view the house differently. "We quickly developed a tight relationship with



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Roger Cook shows how precast concrete blocks create the look of aged cobblestones

# BUILDING A RETAINING WALL

**K**urt and Maralee Glitzenstein loved the way their Colonial Revival house in Concord, Massachusetts, stood proudly at the top of a rise. But the rotting timber retaining walls on either side of its long driveway were an eyesore. They were also beginning to lose the battle to hold back the soil of the steeply pitched lot. Not sure what to do, the couple called in *This Old House* landscape contractor Roger Cook for help. His solution: over 300 linear feet of new wall, built from interlocking concrete blocks that look like cobblestone.

"It was a no-brainer," says Roger of the decision to use a mortarless system (in this case, Risi Stone's "Pisa II"). "The blocks are engineered to withstand steep grades, and they look like the real thing, but they go up in half the time." They



*This Old House* landscape contractor Roger Cook (above) shows a mortarless retaining wall system made from cast concrete blocks that resemble cobblestones for the installation in Concord, Massachusetts.

BY GINA ALEXANDER

PHOTOGRAPH BY KELLER & KELLER





On a chilly winter day, Roger Cook and his crew begin the job by pulling apart the old timber retaining wall. Then they dig and compact a foundation of crushed stone. As they lay the courses of interlocking concrete blocks, they augment the site's drainage with more stone and a perforated pipe. Several layers of plastic reinforcement mesh tie the wall into the backfill. A block splitter cuts the concrete blocks where necessary to create a staggered pattern.



also cost significantly less—approximately \$30 to \$50 per square foot installed, versus around \$40 for a mortared fieldstone wall, for instance. And although that's not as cheap as old-fashioned landscaping timbers, these segmental retaining walls add an even pressure-treated wood.

#### ENSURING A STRONG WALL

The weight of wet soil can topple even the sturdiest wall, so ensuring water runs away before it becomes a problem is essential. The first step to improve drainage is excavating some of the soil to make way for crushed-stone backfill and a perforated pipe. The amount of earth that must be removed depends on the project specifics, including soil type and wall height. A good rule of thumb for low walls is one foot back for every foot of height.

Walls taller than 40 inches also require setbacks for added stability. "Whenever I'm dealing with a wall over five feet tall, I call in an engineer," says Rogers. "No exceptions." The engineer will analyze the soil's slope and soil conditions, then specify exact drainage and setback requirements.

With the engineer's recommendations for the Greenhouse's project (which tops out at 9 feet in height) to hand, the crew can begin work. They first outline the new wall's contours on the ground with spray paint, following a plan drawn by Boston landscape architect Jeff Thomas. Then they run out the old wall, excavating to grade anywhere from 2 to 7 feet behind it, depending on the new wall's height at that point.

#### BUILDING THE BASE

The bottom course of the retaining wall needs a solid foundation. To lay out, the crew digs a trench 2 feet wide and 4 feet deep, just below the frost line, following the wall's layout. At the bottom, they spread a 2-inch-thick layer of 3/4-inch washed stone, mix it smooth, and pack it down with a power tamper. To help settle the base course, they add a 2-inch layer of moist dirt and tamp it level. Then they begin to lay the blocks, edge-to-edge up so the grooved bottoms of the next course can be laid on top. (The first few courses will ultimately be hidden under ground.)

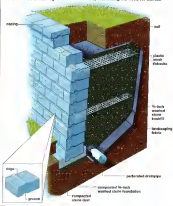
The crew levels the blocks as they go, and again when the entire course is down, making small adjustments to each by tapping it with a rubber mallet. "The first course must be perfectly level," says Rogers, "because any errors at the bottom will be magnified as the wall rises."

#### IMPROVING DRAINAGE

With the first course in place, the crew spreads landscaping fabric over the most excavated area, starting from the base of the wall and running up the slope, leaving enough material to turn fold back over

#### Anatomy of a Segmental Retaining Wall

A solid foundation, setback drainage, and sturdy setbacks ensure that this retaining wall won't topple under pressure from earth and water. Its rigid-and-grooved concrete blocks lock together when stacked, reinforcing the need for setbacks.



the top of the backfill. This water-permeable fabric prevents the retained soil from working its way into the drainage zone and clogging it or the drainage pipe. The crew wraps a similar length of landscaping fabric around the perforated PVC pipe, then lays it, folds facing down, along the back of the blocks. "If water builds up behind the wall, it's going to meet at the bottom and work its way up," says Rogers. "The perforated pipe drains water away before it can move up." The pipe is angled downward slightly (slope approximately 1 inch for every 4 feet of length) toward the low end of the wall, where a well drains onto the strip of gravel between the wall and the driveway. The pipe is then covered with a double layer of 3/4-inch washed stone backfill, which is packed down with the compactor.

#### SETTING THE COURSES

The rest of the wall goes up quickly, thanks to the blocks' rigid-and-groove system, which not only aligns the units but also

systematically steps back subsequent courses by 1/4-inch. Rigger's primary concern when stacking the blocks is staggering them so that the vertical seams of stacked courses don't line up, which can weaken the wall. Periodically, he positions a block vertically, to break up the pattern and suggest the informal look of natural stone.

To avoid bulging, air pockets behind the wall, the crew backfills and compacts after each course. And when every fourth course, they lay down a sheet of ground-free plastic reinforcement mesh—which ties the wall and backfill together in a single, inseparable mass. They anchor the front lip of the mesh to the wall by sandwiching it between the edge and groove connection of two neighboring courses.

"The first course must be perfectly level, because any errors at the bottom will be magnified as the wall rises."

—RIGGER (2004)

There is enough play between blocks to allow for gentle curves; in fact, the units are versatile enough to be used to build steps (for a look at alternative modular systems, see "More Interlocking Concrete Block Systems," right). To illustrate the results of a staircase leading from the driveway to the front door, the crew strategically incorporates "Pia Lata"—special blocks made of high-strength plastic that camouflage low-voltage lights—into the wall. (Similar blocks that conceal outdoor speakers, "Pia Sounds," are also available with this system.)

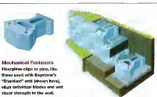
#### TOPPING IT OFF

Once the last courses of retaining block are laid, the wall is ready for the spacer's coping stones, which are grooved on the bottom and held in place with a bead of caustic adhesive caulk. With the coping stones in place, the crew folds the end of the landscaping fabric over the backfill so it covers the wall just below the second-to-last course. On top of the fabric they add the final layer of backfill—a fast-thick bed of loam that will be planted with turf grass.

A few after the project began, grass is taking over the edge of the coping, and Kurt Greenstein says the wall blends in perfectly. "I've always felt that good landscaping should be almost invisible," he says. "It should fade into the background. These walls really look like they're part of the terrain." ■

## More Interlocking Concrete Block Systems

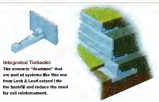
Segmental retaining-wall systems make wall-building faster and easier. There are many proprietary modular systems available. Below are three alternatives that use distinctly different mechanisms to interlock. They all perform well, so you can choose the look that's right for your property.



**Mechanical Fasteners**  
Wireless clips or pins, like those used with Keystone's "Starburst" and "Phoenix" blocks, slot into the blocks and are secured through to the wall.



**Plantable Gouges**  
Hollow units, like the slotted blocks in Western's "Gardens" system (shown here), can be filled with dirt and used for planting flowers.



**Integrated Tiebacks**  
The concrete "footings" that are part of systems like this one from Lock & Load extend into the backfill and reduce the need for soil reinforcement.

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WE HUNGRILY DEVOURED THE  
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Louisville homeowner Carlton Ridge (pictured) took a dark and gloomy farmhouse and turned it into a stylish re-creation of an English country cottage. The house is topped with layers of red-tiled and outside roofing that suggest the look of thatch.

A nondescript farmhouse is turned into an English country cottage—right down to the secret door

## COTSWOLDS IN KENTUCKY

Surrounded by dense woods and polo fields, the house with the eye-catching molded eaves recalls the thatched roofs of centuries-old English cot-



tages. This is not an authentic Cotswolds charmer, however, but a stylish re-creation set on 11 rolling acres just outside of Louisville, Kentucky. From a magnificent two-story library to an ingenious secret door, the renovation project was the vision of homeowner

Carlton Ridge, a lifelong Anglophile with roots firmly planted in the Bluegrass State.

A seventh-generation Kentuckian and accomplished equitation, Carlson was originally drawn to the picturesque property for its big barn, where she could keep her two horses, and for its proximity to areas where she could forage. But the lovely setting did nothing to lighten the 138-year-old, three-bedroom farmhouse that came with it. "The ceilings were low, the rooms were small and dark, and the kitchen needed updating," Carlson recalls.

In place of the house's crisscrossed porch entry, she imagined a grand foyer with three stairways leading to other areas of the house. The 716-sq-ft living room ceiling (and the floor of the game room above) would be ripped out to create automatic two-story library. And the small kitchen would be overhauled and an adjoining back porch replaced by an 876-square-foot game room addition, with a soaring ceiling and Gothic masses. All that would remain of the original layout was the dining

**moment** The light-filled foyer, formerly a crisscrossed porch, now has a set of French doors leading to three entries into the living room and a ground-floor home office.



Removing the ceiling of the living room and the floor of the room above (game room), Carlsson created a dramatic two-story library (from main) that doubles as a living room.



The new kitchen is filled out with English-style mixed-pedestals and a double doorway that is all new to the adjoining great room.

room and master bedroom next downstairs, as well as two upstairs bedrooms and a bath. "It was almost like building an entirely new house," says Carlson.

#### PUTTING IDEAS INTO ACTION

After loaning her plan off friend and architect Tim Winters, who roughed out some sketches, Carlson turned to Louisville contractor Rod Seibert to execute her ideas.

Given the age of the house, Seibert was concerned that removing the living room ceiling and the floor joists would compromise the exterior walls. "I worried that the old walls would give way," says Seibert. So he decided to enclose the front porch first, tying the supports into the double-stroke wall. Beneath the living room's old plaster and lath, however, he discovered a sturdy, 3-foot-thick brick wall. "The ceiling came down without the walls even flinching," he says. To open up the room further, Seibert removed one side of the enclosed sun room that shared the living room and replaced it with a wrought-iron ceiling.

The new plan also called for replacing bookcases on either side of the brick-stone fireplace with two sets of French doors, which would lead to a terrace. When Seibert's crew began nipping out the old shelving, however, they discovered an entire wall of the same brick rock had gone undisturbed. "It was pretty amazing, and we'd had no idea it was there," says Seibert. The discovery gave Seibert the material to extend the fireplace to around all the way up to the new 17-foot ceiling height. "We carefully took each stone out by hand and started rebuilding," he says. To complete the two-level library, Seibert's crew reconstructed a 27-foot-long hallway at the top of the stairs that dramatically spans the length of the living room where the old ceiling used to be. The hallway features built-in bookshelves on one side, a sweep of custom-made of the wrought-iron ceiling on the other, and the same appressed doors found in the rest of the house. "It's like a wonderful balcony," says Carlson.

There are more fine-toothed bookcases in the living room and along a recessed hallway that leads to the master bedroom suite. Here Carlson wanted to add no design of surprise worthy of an Agatha Christie mystery. If you push on what appears to be one section of a wall of books, it swings open, revealing the bedroom beyond. "The key was to make the bookcase look like they were real and had always been there," says Seibert. So he built working bookcases around the existing double-width doorway. Then he installed two raised-panel doors in the opening, covering the bookcase side with plywood and painting it black to give a depth. Carlson had discovered a company in England that makes



Great Room





Pam Bradshaw's hide "cave" also hosts a leather-bound tome. The newsmagazine shelves hold leather-bound books by classic British authors.

modified plastic book spines that resemble bound leather. "We gave them the dimensions of our face shelves, and they made up just enough faux books to fill them," says Seibert, who laboriously glued the spines one by one onto the plywood surface in rows, then added a narrow strip of plywood beneath each row to look like a shelf. To further the illusion, the real bookcases are stocked with similar-looking, leather-bound volumes.

#### ADDING HOME TOUCHES OF ENGLAND

In the new great-room addition off the kitchen, Carlson wanted a light and bright space for entertaining, with room for her good piano, a fireplace, 12 foot-wide Rumford fireplace, an eating area overlooking the back fields, and vaulted ceilings with exposed beams and Gothic trusses. In order to achieve a soaring, 17-foot ceiling height, Seibert had to step down the floor level from the adjoining kitchen and dining rooms by 12 inches. These sets of steps make the transition between the spaces a graceful one.

While a cottage in the English Cotswolds might have stood made of flint, that wasn't practical for the Kentucky climate. To approximate the look, Seibert brought in Louisville-based craftsman Tim Seawick, who suggested an innovative mix of stone, rubber-wood merchandise needing to create the curved eaves. After removing the old asphalt shingle roof and laying down an ice and water shield,

Seawick cut the modified flintstone siding into 4-inch strips, giving one side a scalloped edge. He then welded each piece in place with a propane torch, laying out and overlapping the woodgrain to look as he went. He united all the roof concerns under thousands of feet of the stuff, covering the roof's distinctive modified look, a process that took two men about four weeks. "It was extremely tedious, but with all that overlapping it's a good four-layer thick, and should last 30 years," says Seawick.

But a garden and needs to show for you (and somewhere to address that one and direct weary away from the front door). Seibert installed a French door—PVC pipe coated with drainage holes, but a good-looking finish—around the perimeter of the house.

Though Seibert of Seawick and Seibert's guidance in the new roof, Carlson watched carefully during the first couple of downpours. "There wasn't a single leak. And for the first time, the basement stayed dry," she happily reports. And while her friends knickered at the roof's \$42,000 price tag, Carlson is thrilled with the shingle-like result.

In fact, by project's end, the only thing Carlson felt her Cotswolds-style cottage lacked was a proper British name. Neither Seibert, the architect, nor Seawick, the craftsman, decided to call it, right out of Jane Austen's *Pride and Prejudice*. And while it's clear that her bias is toward all things English, it's equally evident that her pride is well deserved. ■



The master bedroom's hideout features a leather-bound tome. The newsmagazine shelves hold leather-bound books by classic British authors.

*Illustration: Henry and Tibb Works  
consider "throwing" London  
spindle clay into a deep plaster  
mold to form figures that will be  
assembled into a bold, colorful  
ceramic relief panel (shown in  
foreground). An original red-  
fired kiln forms behind him.*



## tiles of imagination

Handmade from the original patterns,  
these Arts and Crafts designs still  
have the power to amaze

*by Michael Lufwore  
Photographs by Pascal Bianconi*



It's a good thing that Henry Chapman Mercer didn't settle on a career earlier in life. Had he stuck with being a lawyer, a historian, a museum director, a writer, or an archaeologist, the Arts and Crafts movement might never have seen one of its most creative and influential decorative tile makers, and many buildings and homes, including my own, would have been the plainer for it.



Little Bridge



Little Glasgow



Crossed Square

Things worked out well for Mercer, too. Although he didn't begin selling his handmade pots until he was 43, his business, the Moroccan Pottery and Tile Works, was profitable from its first shipment in 1899 and went on to outlast his death in 1930. It still operates today, producing a selection of beautiful items patterned from his original designs and molds.

If he came late to his art, Mercer was at least able to bring to it 25 years of experience, study, and travel. After graduating from Harvard in 1874, he traveled in a large, but soon abandoned, law to realize his interest in history. Funded by a wealthy aunt, he spent 10 years wandering through Europe and the Middle East. Back in the States, Mercer worked as a self-taught archaeologist on digs in the U.S. and became curator of American and prehistoric archeology at the Museum of the University of Pennsylvania. And in 1893 he led an important expedition to the hill caves of Mexico's Yucatan Peninsula.

One day in 1897, Mercer set out to hunt for a used set of fireplace tools for his house. While rummaging through a bin filled with junk, near his home in Doylestown, Pennsylvania, he was struck by how many of the discarded tools and household implements he found there had been made broken by the Industrial Revolution. But what others saw as worthless—spinning wheels, blacksmith's tools, scythes—Mercer realized would someday be rare and important artifacts. On the spot, he began a collection that eventually totaled more than 38,000 objects, enough to fill the museum that now bears his name.

In made-in-America Mercer's, one thing always leads to another. In his case, the next thing was an attempt to recreate the traditional pottery pottery that had once been made from local clay by the Pennsylvania Germans. He failed at that, but the work opened an interest in ceramics, and he began to experiment with his own tile designs.



With its stoves, windows, and ceiling-arched ceilings, the large woodwork in the Mercer Pottery and Tile Works building shows the flowing lines and soft textures of its concrete construction. Tiles are still made by the same methods used in the early 1900s.

Like many artists of his time, he was caught up in the Arts and Crafts movement that swept the United States and England in the early 20th century. Its plain and simple designs were a reaction both to the ornate styles of the Victorian era that preceded it and to the Industrial Revolution and its flood of



Lotus



Oak Leaves and Maple



Literatures



White Flower

## A Man With Concrete Plans

Although Henry Chapman Mercer had no formal architectural training, the three buildings he designed are all on the National Register of Historic Places and are National Historic Landmarks. His favored building material was hand-molded redware stoneware, which he used not only for floors, walls, and roofs, but for many of the interior furnishings as well. He hand-poured concrete countertops because it was cheap, easy, and durable, and he would place tiles into the wet concrete.

Mercer's last building project was his Doylestown, Pa., home, Pottery,

which he called his "concrete castle for the New World." With 14 interior rooms and no windows of glass, it was built between 1928 and 1932 with a crew that consisted of Mercer, several helpers, and a horse. They built wooden forms and poured concrete into them to form the rooms, as well as built in stoves, bookcases, tables, and benches. Mercer and thousands of his handworkers built into the wet concrete to decorate the interior.

Mercer used turned his attention to the Moroccan Pottery and Tile Works (photo, opposite) a few hundred yards from Pottery. The first

of the building, which resembles a Spanish Colonial mission, housed a light-filled open space that served as a office, showroom, and working design studio. Two long wings perpendicular to the house housed the production facilities and built, hand-fired tiles.

His final building project was the secondary Mercer Museum, constructed to house his vast collection of Early American tools and implements.

Today, all three buildings are open to the public for tours. The Moroccan Pottery and Tile Works also offers apprenticeships and tile-making workshops.

PHOTO TOP LEFT: COURTESY OF THE MORRIS MUSEUM; PHOTO TOP RIGHT: COURTESY OF THE MORRIS MUSEUM; PHOTO BOTTOM: COURTESY OF THE MORRIS MUSEUM



Completed in 1932, the Moroccan Pottery and Tile Works building is a free-standing, organic structure, yet a Spanish-Moroccan style, built of wet-molded concrete—a novel building method in its day.





Swan



Cat



Bee



Deer



cheap, mass-produced goods. There was a fascination with the hand-made and a yearning for a closer connection with the country life that was steadily disappearing. Mercer himself summed up the movement's goals well when he said: "Machinery can't make art. It can make automobiles and radios and telephones, but it can't create art. Art needs the touch of a human hand, as thing as well as its skill."

While he never gained the fame of such Arts and Crafts designers as Frank Lloyd Wright, Gustav Gullberg, and William Morris, Mercer's tiles won a number of prizes at exhibitions and earned good notice in the decorating magazines of the day. This created interest among architects designing churches, commercial buildings, and homes, and they began ordering Mercer's tiles as integral decorations for their projects. The tiles found their way into hundreds of buildings, including the John D. Rockefeller estate, in New York, several oceanfront hotels in Atlantic City, New Jersey, the Isabella Stewart Gardner Museum, in Boston, the Pennsylvania State Capitol, in Harrisburg, and many private homes. My own house in southwestern Pennsylvania, built in 1938, has two rooms with floors made of glazed 3-by-2-inch Mercerware tiles, a fireplace surround depicting colonial life over four seasons, and an interior fountain that features the opening head of an ancient paella.

Mercer's simplest tiles depict animals, birds, insects, trees, dragons, sea creatures, ships, circles, and signs of the zodiac. He could, however, also be wildly and whimsically inventive. His largest and most elaborate tiles and mosaics recreate historical and biblical scenes, everything from "Sam's George and the Dragon" to "Boston Market," listed as a print by Paul Renne. A fireplace facing in the Saugerties Public Library, in New York, tells the story of Rap-



**OPPOSITE AND LEFT:** The fireplace surround in the author's 1920 Pennsylvania home features original Mercerware tiles telling a pictorial story of colonial life during their first six years. The unknown source [below], entitled "Picking Grapes," is still made today.

Vin Wykle in a scene of artist painting a tile.

The tiles were, and are, used for interiors—mainly floors, backslashes, and fireplaces—as well as exterior decoration. Of the 70-year-old tiles on the outside of the tile works building are any indication, they stand up very well to the elements.

To manufacture his mosaics, Mercer would paste when slouch a design on paper, and then he or an assistant would carve it into clay. The carving would then be used to cast a plaster negative mold, for making tiles, and a positive one, for making replacement molds when the old ones wore out.

In his will, Mercer left the tile works to his assistant, Frank King Swann, who operated it until his death in 1934.

After that, it slipped into decline, and it closed in 1964. Bochs County bought it in 1967 and opened the works again two years later. "Workers found more than 6,000 of Mercer's molds stored in the building. The designs aren't all of them himself," says Vincent Korbles, the curator of the tile works today. "His rack has inspiration from things around him: plants he'd collected, prints in books, carvings of ancient vases, and even old cast-iron stove plates. He was extremely prolific."

On a warm late-summer morning, Chris Bowser, one of the full-time assistants at the tile works, is turning over 4-by-4-inch tiles of one of Mercer's most popular designs: a floppy rabbit. It's show work, done with a wooden hand press very similar to one Mercer designed. Bowser grabs a square of the local clay, the same type that Mercer used. It's the color of milk chocolate and is dense as rubber. Bowser places the clay on a wooden table, positions a plaster mold on top, and then pushes it down to press the mold into the clay, impressing the design. There are no stamps or gauges on the machine. "My son knows the correct pressure," says Bowser. When he's done, Bowser dips off the excess clay with a knife, then places the tile on a wooden tack, where it will dry for several days before it's fired, then glazed, and fired a second time.

It's the same process that Mercer and his small staff of 10 to 15 workers used to make out thousands of orders a year. The only significant difference is that the kilns are now fired by gas and electricity instead of coal. It's a point that Korbles is somewhat obsessive about, but when compared, new tiles and those Mercer made centuries from the country's collection are visually indistinguishable.

The dozens of original glazing techniques that Mercer developed add to the



Smoking Tobacco



Centenary Train: Progress



Bow and Arrow



Digging



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# Norm's Notebook



## No-Mar Saw Cuts

**S**ometimes you just can't avoid doing rough things to finished surfaces. Like cutting a hole for the sink in a laminate countertop. Or sawing a lot of the bottoms of a freshly-painted door to accommodate new, thick-ty carpeting. But whenever you do this work, you run the risk of marring the surface.

The solution is to cover the steel's metal base with a layer of masking tape, the wider the better. Run it parallel to the direction the saw will move so the tape won't peel up, and butt the strips' edges to gather (rather than overlap them) so they don't create ridges.

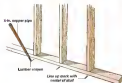
I used to leave the tape on, until I found out that it leaves a gummy residue. Now I peel all of it off as soon as the cuts are made.

## Marking Studs for Later

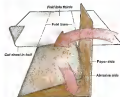
**T**he last time carpenters don't have Supermark's X-ray vision, it would make it so much easier to see exactly where the studs are after the drywall is up. I do the next best thing: After a wall is framed but before the drywall is hung, I go around and mark the midline of the center line of each stud with a lumber crayon—a bigger, waxier version of a chalk Crayola. Later, the lines show me where to nail baseboard and, with the help of a level (held vertically), where to frame closet walls.

My father had his own twist on this technique: He jammed the crayon into one end of a length of half-inch copper pipe so he didn't have to bend over to make his marks.

By the way, if the floor will be covered with vinyl, use a pen, ink, crayon or even actually bleed through the flooring. I found that out the hard way at my house. At least in those rooms I will always be able to tell where to hang shelves and heavy pictures.

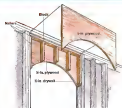


## Folding Sandpaper



**I**f you're a power sanders, but I actually do a lot of hand sanding. There's nothing like a light touch with sandpaper for smoothing the edges of a shelf, smoothing a sanded surface, or feathering scraped areas when I'm repainting.

I seldom fold my sandpaper sheets into halves, then quarters, then eighths, but the abrasive surfaces rub against each other, wearing down the grit before it even gets near the wood. Now I simply cut a sandpaper sheet in half widthwise (from the back of the sheet, so avoid dulling the knife blade), and then fold each half over thirds. It keeps the abrasive sharp and is far less bulky than a full sheet folded into eighths.



## Making an Arched Door Opening

**A**ffected discovers, a common feature in Crohn's and ulcerative colitis, is a mucous tract to almost any tissue. It's often called "leaky gut" because it can cause your immune system to attack itself.

Here, after oil of the cooking turn, pork, and dry meal to engage the flaming above and beside the discovery. Remove the burner and crumple up to the top plate. Then, settle on a curve that looks good to you and its inside the opening; mark it on two stacked, round pieces of 1/8 inch CDEN plywood (you'll come to later with drywall) and cut the curve out with a jigsaw. The pounds should fit the area about the disc, right up to the ceiling. Next, slip three more 2x6s to make nailers and blocks (about 2x6 inches wide) so that the thickness of the plywood should just reach the width of your existing framing. Cut the lower ends of the vertical nailers and blocks at an angle that approximates the curve.

To assemble the sawtooth, start by fastening all three sides to the chest framing as shown. Then screw the plywood pieces to the rafters on both sides of the doorway. Use some construction adhesive on the edges of the blocks, then slip up between the plywood panels, and secure them with screws in 3d box nails. Space the blocks about 4 inches on center so there'll be plenty of solid wood to screw the dremel into.

Now all that I left is to hang the drapery. Curve the plywood on one side of the doorway to the bottom edge of the drapery, hang below the curve. Cut along the curve with a diagonal saw, using the plywood as a guide. Repeat on the opposite side. The head (arch) in the vertical doorway (the middle piece in the bottom row of the plywood drapery) stands about as close as I formed with more drapery. Because it's curved, I use two layers of 1/8-inch plywood, screwed into the ends of the blocks. Now I finish the center bend in the bottom of the web on each side, and your doorway will be ready for most entrances and exits.

## Brushing Up for Power

**A** couple of weeks ago, one of my routers started running badly. Looking through the air-vents grill as the router hummed on, I saw more than the usual amount of buzzing—the tiny black-white spots around the motor—a telltale sign that it was time for a new pair of brushes.

Brushes are rectangular chunks of carbon dust coated electrolytically to the motor's most powerful coils. Each of the brushes—they always come in twos—sit held against the motor's commutator by a small spring. As the commutator spins, bush brushes gradually wear down until they lose firm contact with the commutator, and that's when the red wires to run poorly (Clipped brushes cause the same problem).



Replacing brushes is a far less expensive than buying a new tool. For a few dollars, you can order a pair from the mail order, mail put them in yourself. First unscrew the tool and remove the metal blade plate. Next, take the top of the tool housing. Take off each one slowly in the spring loaded brushes don't pop out. Then reach in and remove the old brush and spring. After slipping the new brush in and spring, insert plate fully cover on a wall, set back the cap by hand, and screw it up with a screwdriver. You'll be amazed at how much better the tool will perform.

## Perfect Pitch



**M**ost of the time, you need to lay a level to make sure that something is perfectly horizontal. But you can also use a level when something's things need to be out of level—and pipes, patch decks, patios, and gutters, to name a few—so they will drain properly. The trick is to attach a patch block to one end of the level. For instance, if you want a pipe to pitch 1/8 inch for every foot of run, butt-glue a narrow 3-inch-thick block to one end of a 6-foot level. Now where you place the block on the lower end of the slope and adjust things so the bubble reads level, the work surface will be at an even steeper

[illegible]

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PHOTOGRAPH BY ERIC ASENS

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Landscape contractor: Ed's Tree and Landscaping, Burlington, MA, 781-272-6184  
Landscape designer: Foghorn Inc., Colchester, Massachusetts, 978-227-5553

HOUSE CALLS WITH STEVE  
pp. 23-32

Cabinetry: Cabonets N Woodworks, Inc., Milton, GA, 478-678-0664. Glass cabinet knobs: Antiques Like Granny Hill, Hagerstown, GA, 706-482-8764. Bus pulls: Crown City Hardware, Princeton, CA, 800-950-1047, [www.crowncityhardware.com](http://www.crowncityhardware.com)

Roof paper—(clockwise from top left) Granite seal: Niro IG Blanco, Concordia, NJ, 800-415-3702, [www.blanco.com](http://www.blanco.com). Unibuy seal: Hardware, Kohler, WI, 800-914-4557, [www.kohler.com](http://www.kohler.com). Offert's seal: Model 8713, Tarnan Industries, Williamsport, NC, 717-412-1702, [www.offert.com](http://www.offert.com). Creamy slide: American Standard, Princeton, NJ, 800-442-1802, [www.americanstandard-us.com](http://www.americanstandard-us.com)

ASK THIS OLD HOUSE  
pp. 32-42

Windows for the coast: Velux, Greensboro, NC, 800-838-1518, [www.velux.com](http://www.velux.com)

Structural insulated panels (Structural Insulated Panel Association, Oak Harbor, WA, 253-818-7472, [www.sipa.org](http://www.sipa.org)). Lincoln Log: K/NEX Industries, Inc., Lincoln, PA, 480-543-5439, [www.lincolnlog.com](http://www.lincolnlog.com)

Adhesive removers: Thick Bond Adhesive Remover, Hixson Consumer Adhesives,



On the job, page 24, The creator of these tool-wielding "action figures" hopes kids who play with them will learn respect for trade work



Metabolic, page 30. Structural insulated panels are strong and energy-efficient.

751-356-6537. Mark Hembert, CEO Thick Adhesive Paper, Pleasant Industries Corp., North Ridgeville, OH, 877-353-6440

TECHNOLOGY:  
GETTING INTO HOT  
WATER  
pp. 42-46

Electrician: American Water Heater Company, Johnson City, TN, 800-899-9335, [www.americanwaterheater.com](http://www.americanwaterheater.com)  
Gas: Brook American Water Heater Company

Oil: East: Buck Water Heaters, Madison, WI, 800-794-2451, [www.buckwaterheaters.com](http://www.buckwaterheaters.com)

Our choice: Nat. Direct Solar, Gas Appliances Manufacturers Association (GAMA), Arlington, VA, 703-525-3060, [www.gama.org](http://www.gama.org)

MATERIALS:  
STRUCTURAL INSULATED PANELS  
pp. 50-54

Polystyrene foam core (D&B Insulation, Needham, MA, 517-466-4144, [www.dandb.com](http://www.dandb.com))  
Polyurethane PUR: Prads by The Mann Company, Menasha, WI, 370-545-2108, [www.mann.com](http://www.mann.com)

Wood-faceted (Jude's) Insulation: Drywall-clash: Produr SPS, Louisville, KY, 800-792-7477, [www.fishersystems.com](http://www.fishersystems.com)  
Our choice: Sandy Creps, Insulation: Fiberglass Timber Framing, Mansfield, MA, 517-466-4335, [www.crestinsul.com](http://www.crestinsul.com)

TALKING SHOP:  
CHOOSING A RANDOM-ORBIT  
SANDER  
pp. 56-62

Palm sander #3013K by Makita USA, Inc., La Mesa, CA, 800-463-5482, [www.makita.com](http://www.makita.com)

Right-angle sander #7 "Variable Speed Random Orbit Sander Ka with Dual Collection #97364 by Porter-Cable, Jackson, TN, 888-848-5175, [www.portercable.com](http://www.portercable.com)  
In-the-dirt #7 "Random Orbit Sander

#37210AS by Bosch Power Tools, 177-267-3439, [www.boschtools.com](http://www.boschtools.com)  
Dual sander #MS4636 II by Fast Power Tools Inc., U.S.A., Pittsburgh, PA, 800-441-5878, [www.fast.com](http://www.fast.com)

GADGETS:  
GREAT GADGETS  
pp. 62-68

Gripless Repulse Glove: Inland Performance Wear, Los Angeles, CA, 818-316-3190, [www.inland.com](http://www.inland.com)

Shoe: Flashlight: Model #DK203, The Sharper Image, San Francisco, CA, 800-344-4444, [www.sharperimage.com](http://www.sharperimage.com)

Quack-Klacker Magnet: Model #DK3030, Los Valley Tools, Oysterburg, NY, 800-876-8138, [www.lvttools.com](http://www.lvttools.com)

Electronic scanner: New York Can Find It Model #8567, The Sharper Image. Scanner: non-contact scanner: Concoch Electronics Inc., San Clemente, CA, 800-767-6458, [www.concoch.com](http://www.concoch.com)

Backyard Bird Cam: HomeMaster Solutions, Fairfield, OH, 800-543-3566, [www.homesmaster.com](http://www.homesmaster.com)

Well head finder: S & B Power Tool Cam pump, Chicago, IL, 877-734-8999, [www.sandb.com](http://www.sandb.com)

Mt. 3-Blade: To Drive Marking, Burlington, MA, 781-272-4238, [www.mtsmarking.com](http://www.mtsmarking.com). Also available at Target stores.

Rock-Dri-Sure Craftsman, 800-548-4502, [www.stuartcraftsman.com](http://www.stuartcraftsman.com)  
Balls Eye: Black & Decker, Wrentham, MA, 800-544-4896, [www.blackanddecker.com](http://www.blackanddecker.com)

InterSealer digital projection: Bosch Power Tools, 877-267-2699, [www.boschtools.com](http://www.boschtools.com)

Vacuum Section-Cap Lifter: Model #8831703, Los Valley Tools

LUXURIES:  
THE BEST PROTECTION  
pp. 70-74

Locking mechanism in operation: Empire Safe, New York, NY, 800-943-5412, [www.empireusa.com](http://www.empireusa.com)



Gadgets, page 62. Right: Glove and a flashlight in our tool—wear

Safe with jewelry and watch drawer: Empire Professional Series PRO2614 by Empire Safe  
Fire-resistant safe: Fire King Security Products, New Albany, IN, 800-457-3424, [www.flocking.com](http://www.flocking.com)



Upside, page 76. Peel away old wallpaper with stripping solution and a scraper

Model: please friends: DKNBC #912 by Sears, Roebuck & Co., 800-832-6366, [www.searsroebuck.com](http://www.searsroebuck.com)

Our choice: 1st National Knives, Empire Safe, Josh Kaplan, Seco, Lancer Products, Fire King Security Products

Robert A. Gurdian, security management consultant, Ventura, CA, 805-459-6234, or Las Vegas, NV, 702-733-6711, [www.priori-urgent.com](http://www.priori-urgent.com)

UPKEEP:  
STRIPPING WALLPAPER  
pp. 76-78

Paint contractor: Jim Clark, Clark Painting, Sudbury, MA, 978-463-1891

Wallpaper-stripping specialists: Louis Light, Wallpaper Stripping Specialist, Ledyard, NY, 516-361-7931, [www.demolitionexpress.com](http://www.demolitionexpress.com)

Our choice: 1st National Knives, The National Guild of Professional Psychologists, Dayton, OH, 800-234-4977

Water-based sealer: Kwik-Krete, Madisonville, Kentucky, 800-324-1832, [www.kwikrete.com](http://www.kwikrete.com). Balls Eye: 2-3, Zinner Co. Inc., Somerset, NJ, [www.zinner.com](http://www.zinner.com)

Oil-based primer: Fresh Start All Purpose Allied Paints, Benjamin Moore & Co., Mooreville, NJ, 800-344-3488, [www.benjaminmoore.com](http://www.benjaminmoore.com)

Wallpaper strippers: Dof Wallpaper Stripping, Zinner Co. Inc. Safe and Simple Wallpaper Remover Products & Services, Fountain, CA, 650-446-6703, [www.safesimple.com](http://www.safesimple.com)

Wallpaper scoring tool: The Tiger Tiger, Zinner Co. Inc.

Leaves and garden sprayer: R. Flowers, Rock/Lowell Manufacturing Co., Lowell, MA, 800-333-4412, [www.sprayer.com](http://www.sprayer.com)

HOMEOWNER'S HANDBOOK:  
FIREPLACE FIRE-LIFT  
pp. 81-86

Mason: Don McLaughlin, Fireplace and Chimney Services, West Groton, MA, 978-446-4522





**Building a Retaining Wall** page 100: TCRP landscape contractor Roger Clark monitors the construction of a new concrete-block wall.

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86-88-88

Tree removal expert: Sharon McLaughlin, McLaughlin Tree Removal Inc., Lexington, MA, 781-861-5380  
Massachusetts-certified arborist: Matthew B. Fon Landscape and Tree Service Inc., Lexington, MA, 781-861-0385, [www.boness.com](http://www.boness.com)

Electronic Allen Galloway, Galloway Wey  
Inc., Lexington, MA; 781-463-4636.  
Radiant heating: Truchewy Brothers,  
Boston, MA; 617-332-3283.

Our thanks to USDA Forest Service,  
Washington, DC, 202506-6133,  
www.fs.fed.us.

### BUILDING A RETAINING WALL

#### pp. 104-108

Landscape contractor: R. & B. Tice and  
Landscape, Burlington, MA, 781-372-  
4104. Landscape architect: Jeffrey A.  
Thomas, Boston, MA, 878-590-3267.

Gravity stairs. Svensson Granite Works  
Madway, MA, 501-513-2882,  
www.svenssongranite.com

Light post: Wholesale Woodworkers, Ltd.

pole, MA, 800-343-5740,  
www.wildpole  
woodworkers.com.

Featured sag mounted retaining wall systems like Stone's Plus II, Thornhill, ON, Canada, 800-626-3235, [www.retaining.com](http://www.retaining.com). Plus II rammed blocks manufactured for the Gristleman project by Ideal Concrete Block, Westford, MA, 800-444-7187, [www.idealconcreteblock.com](http://www.idealconcreteblock.com). Key-ways Retaining Wall Systems, Minneapolis, MN, 800-387-8790, [www.key-waysretaining.com](http://www.key-waysretaining.com). Wisconsin Forms & Retaining Walls, Waukegan, WI, 877-437-

BC, Canada, 1-77-901-9556, [www.lock-load.com](http://www.lock-load.com).

Additional regional retaining wall systems: Altec Block Retaining Wall Systems, Edison, NJ, 852-833-3300; www.altecblock.com. Anchor Retaining Wall Systems, Minneapolis, MN, 877-293-5413; www.anchorwall.com.

Cambridge Protectors, Larchmont, NJ, 201-933-0300; www.cambridgeprotectors.com. Duren Northeast Products, Inc., Ashley, PA, 870-828-1126; www.duren-ne.com. Greenlee Retaining Wall Systems, Wisconsin, WI, 877-436-3990; www.greenlee.com. Karg's Materials, Inc., Cedar Rapids, IA, 515-360-8338; www.retiningsystems.com. Rockwell Retaining Walls, Rochester, MN, 800-238-4840; www.retiningsystems.com. Ver-

duo, Oremville, UT, 800-346-7993, [www.coltermedia.com](http://www.coltermedia.com) Veris Lok Rebaring Wall Systems, Oakdale, MN, 800-730-1125, [www.veris-lok.com](http://www.veris-lok.com) Wellman Segmental Rebaring Wall Unit, Columbus, OH, 614-276-3618, [www.wellman.com](http://www.wellman.com)

For more information on segmented retaining walls, National Concrete Masonry Association, Herndon, VA, 703-712-1900; [www.ncma.org/pubs/rw.html](http://www.ncma.org/pubs/rw.html)

**TILES OF IMAGINATION**  
pp. 116-124

**Moravian Pottery and Tile Works:** Maintained by the Berks County Department of Parks and Recreation, Doylestown, PA, 213-343-6722; [www.mprp.go.no](http://www.mprp.go.no). Call the museum shop for site purchasing information and updated prices. **Meyer Museum and Pottery:** Berks County Historical Society, Doylestown, PA, 213-345-8230, [www.meyer-museum.org](http://www.meyer-museum.org).

**Suggested reading:** Henry Chapman Mercer and the Moccasin Pottery and Tile Works, by Clifton Reed, University of Pennsylvania Press

COTTERHOLDS IN KENTUCKY  
pp. 110-117

General contractor: Brad Seibert, J. D&K  
Company, Cincinnati, KY, 502-243-9997;  
Architectural consultant: Timothy R. Win-  
ter, Architects, Louisville, KY, 502-793-  
2263, [www.timwinter.com](http://www.timwinter.com). Roof  
contractor: Tim Schraack, Searock  
Roofing, Louisville, KY, 502-217-9384.



<sup>1</sup>“Coburns in Kentucky,” page F19. Some backsliding in the “assault” charge does.

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**This Old House Classics:** A week-by-week synopsis of vintage episodes airing on HGTV and broadcast television. For stations that carry TOL Classics in your area, check TV Listings, page G6.



The crew of *This Old House* helped renovate this 1910 Colonial Revival in Lexington, Massachusetts, back in 1968.



TCM plumbing and heating expert Richard Trencher reviews the updated heating and cooling systems [above](#), while Niles and Tom report the [paving materials](#) used in the addition [here](#).



Episode 13 (of 26)  
 from December 7-8)

For the Leiranger project, first its master plan, landscape architect Tom Wirth discusses a few final details with his client. He modified plan calls for a gently sloped wheelchair ramp which connects the main entrance to the building but began pouring. By washing away a thin top layer of the concrete, creating a scum, he's exposed its aggregate, creating a surface with enough grip for wheelchair use. A room truck operator is now pouring a concrete pycnum wallboard to the site. Hortensia Mary like Shosh tests out the concrete version. "How do you like it?" he says. "I like it." To supply the cement for the basement, April 2nd 200. Homeowner Captain Norm Adams installs the aluminum clad garage door.

With winter approaching, TGA landscape contractor Roger Cook Huron to get the driveway and parking lot including a lot of Norway spruces that will screen the structure from the street. To make the look of the steps, he fakes them with a blue tanger and dwarf white pine. In the landscape, Norm shows the contractor a plan. Clay shows off the white gravel fence and gabion armor that he's secured the future border of the garden. The master bedroom, Norm helps dig gravel under April 2nd. Huron has dug out, getting his hands dirty. He's now in the electrical boxes. A second aluminum clad design generation. Grandfather Dwyer, who is taking the necessary steps—like the new driveway, the double doors, for evidence—to ensure that no red wax will stay in their home with out old age.

**Episode 14**  
(airs December 14-15)

Worm considers the problem of water cascading off the main gable roof and proposes water gutters as the design-appropriate solution. ZCH general contractor Tom Gilve finishes the home office walls with textured plaster. A visit to the factory in Chongqing, Yunnan, shows how the benefits can start with the core technology, which is imported from Indonesia. Myra-Vin uses her extra blocking in the bathroom stall walls to allow for the placement of gas bars and other hardware aids. In the loft space over the garage, the crew finishes the ceiling and walls with wooden planks. On the ground floor, the material also has the benefit of driving all moisture to the exterior.

**Episode 15**  
(a/c December 21-22)

**Episode 66**  
(airs December 28-29)

**Homeowner Jim Sinek** reviews the budget with \$174,000 that the project has cost him. Sinek says he expects another \$150,000 to finish the job. Despite the setbacks, Sinek says he remains firm. In the second-year budget, Sinek's bid for the kitchen cabinets is \$10,000. He wants to apply a finish coat of gypsum to the ceiling. A side trip to a 1,770-sq-ft house noted in the *Resident* has helped.



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三、傳記文學與歷史的距離

Richmond, Virginia

County records show that the Folsom-style brick house, the oldest structure on Richmond's Union Hill National Register historic district, was built by farmer Adam Miller in 1824. Beyond that, the history of the house remained a mystery—until it, and architectural historian Kimberly Chen and her architect husband, Leland, purchased the building in 1983.

There first order of business: a highly descriptive title. In particular, they wanted to know why the building looked like the usual mid-gabled roof and why it sported high-mast roof brackets, a treatment that didn't appear until decades after the house was built. There: something had them so oriented showed others in the area, evidence of a loss. To pinpoint the date of the blaze, they pored over old city directories. The search revealed the house's long string of tenants, including some few a few years during the mid 1850s—precisely when Boston's debating was at the peak of its local popularity. Even then, their files they deduced that the original gable roof had been destroyed by a late 19th-century fire, rendering the house unsalable. And that it was soon replaced with the existing shed roof, predicated in the then-current fashion.

In addition to satisfying their curiosity, the Ghens updated the 1,400-square-foot house's electrical and plumbing systems, added two bedrooms and a kitchen, and subdivided the front porch. They also cleared the double lot, uncovering a Civil War-era cannon ball in the process. In 1999, they sold the property and moved to more spacious digs six blocks away.

The current owner of the house moved out during the 1990s, but it has been vacant for the past several years. The Alliance to Conserve Old Redwood Neighborhoods, a three-year-old nonprofit organization that has already aided in the preservation of dozens of local homes, is leading its sale, looking for a buyer who will live in the home. Aside from some water damage and possible signs of termite activity in the basement, the building is structurally sound, and needs mostly cosmetic work.

If you know of a house that should be saved, please write to: Save This Old House, 1188 Avenue of the Americas, 10th Floor, New York, NY 10020.

For more information, contact the author at [maria.garcia@univie.ac.at](mailto:maria.garcia@univie.ac.at). The author is grateful to the two anonymous reviewers for their constructive comments and suggestions. The author is also grateful to the participants of the 2015 European Association of Public Health (EAPPH) conference for their helpful comments. The author is also grateful to the participants of the 2015 European Association of Public Health (EAPPH) conference for their helpful comments. The author is also grateful to the participants of the 2015 European Association of Public Health (EAPPH) conference for their helpful comments.



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